ADVENTURES OF FUTURE SCIENCE

February

WONDER Stories

HUGO GERNSBACK
Editor

A GERNSBACK PUBLICATION

"THE MOON ER
by Jack Williamson

Other Science Stories
In This Issue

"A CONQUEST OF TWO WORLDS"
By Edmond Hamilton

"THE RADIUM WORLD"
By Frank K. Kelly

"THE CHALLENGE OF THE COMET"
By Arthur K. Barnes

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ON THE COVER

this month, taken from Jack Williamson's thrilling story "The Moon Era," we see the mechanical creatures of the moon, servants of the Eternal Ones being attacked by the brave man from earth and a different time. In the sky swims the earth of a past age, then a vaporous covered ball.

NEXT MONTH

"THE FINAL WAR"

by Carl W. Spohr

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"THE ETERNAL WORLD"

by Clark Ashton Smith

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We can only realize how puny is the human race, how very undeveloped our intelligence and power, how infinitesimal our control over science, when we follow Mr. Smith's picturing of his "timeless" race. And the revolt of the timeless ones with the catastrophe that follows it, is a masterpiece of thrilling description.

FOR OTHER STORIES FOR NEXT MONTH PLEASE TURN TO PAGE 1074

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If You Were DYING TO-NIGHT

and I offered you something that would give you ten years more to live, would you take it? You'd grab it. Well, fellows, I've got it, but don't wait till you're dying or it won't do you a bit of good. It will then be too late. Right now is the time. Tomorrow or any day, some disease will get you and if you have not equipped yourself to fight it off, you're gone. I don't claim to cure disease. I am not a medical doctor, but I'll put you in such condition that the doctor will starve to death waiting for you to take sick. Can you imagine a mosquito trying to bite a brick wall? A fine chance!

A Re-Built Man

I like to get the weak ones. I delight in getting hold of a man who has been turned down as hopeless by others. It's easy enough to finish a task that's more than half done. But give me the weak,sickly chap and watch him grow stronger. That's what I like. It's fun to me because I know I can do it and I like to give the other fellow the laugh. I don't just give you a veneer of muscle that looks good to others. I work on you both inside and out. I not only put big, massive arms and legs on you, but I build up those inner muscles that surround your vital organs. The kind that give you real pep and energy, the kind that fire you with ambition and the courage to tackle anything set before you.

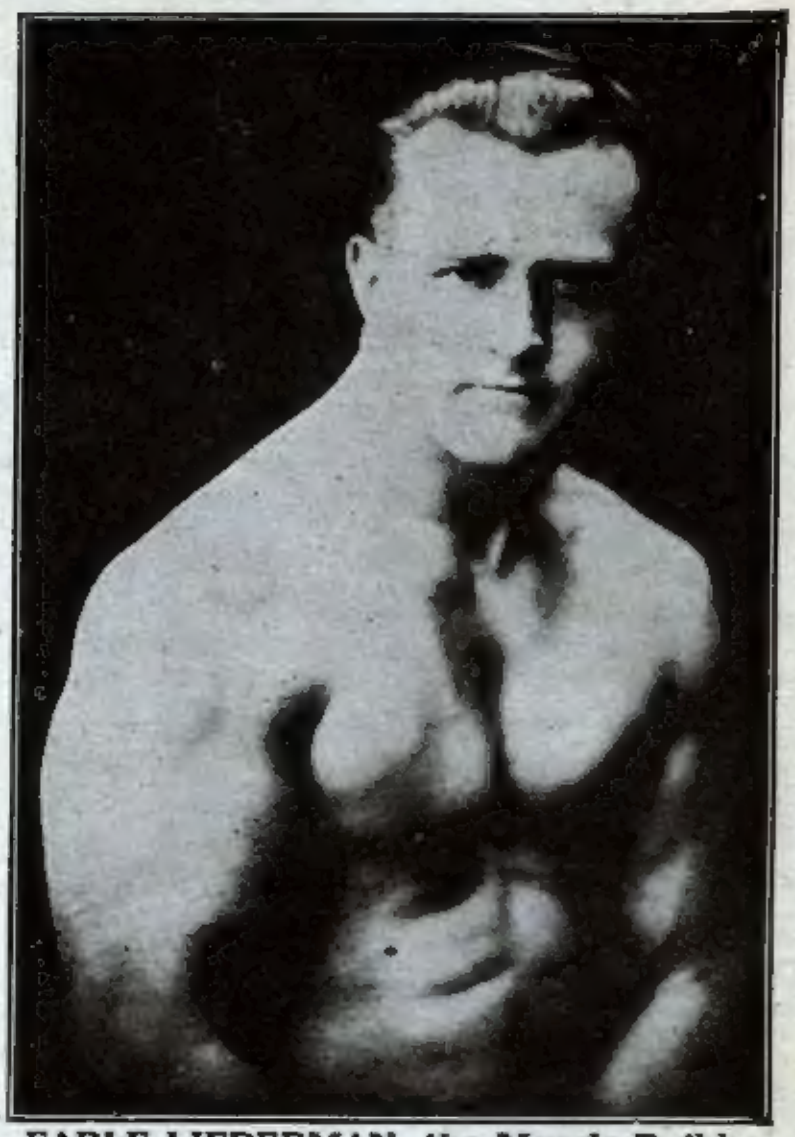
All I Ask Is Ninety Days

Who says it takes years to get in shape? Show me the man who makes any such claims and I'll make him eat his words. I'll put one full inch on your arm. Yes, and two full inches on your chest in the same length of time. Meanwhile, I'm putting life and pep into your old back-bone. And from then on just watch 'em grow. At the end of thirty days you won't know yourself. Your whole body will take on an entirely different appearance. But you've only started. Now come the real works. I've only built my foundation. I want just 60 days more (90 in all) and you'll make those friends of yours who think they're strong look like something the cat dragged in.

A Real Man

When I'm through with you you're a real man. The kind that can prove it. You will be able to do things you had thought impossible. And the beauty of it is you keep on going. Your deep, full chest breathes in rich, pure air, stimulating your blood and making you just bubble over with vim and vitality. Your huge square shoulders and your massive muscular arms have that craving for the exercise ofa regular he-man. You have the flash to your eye and the pep to your step that will make you admired and sought after in both the business and social world.

This is no idle prattle, fellows. If you doubt me make me prove it. Go ahead, I like it. I have already done this for thousands of others and my records are unchallenged. What I have done for them, I will do for you. Come then, for time flies and every day counts. Let this very day be the beginning of new life for you.



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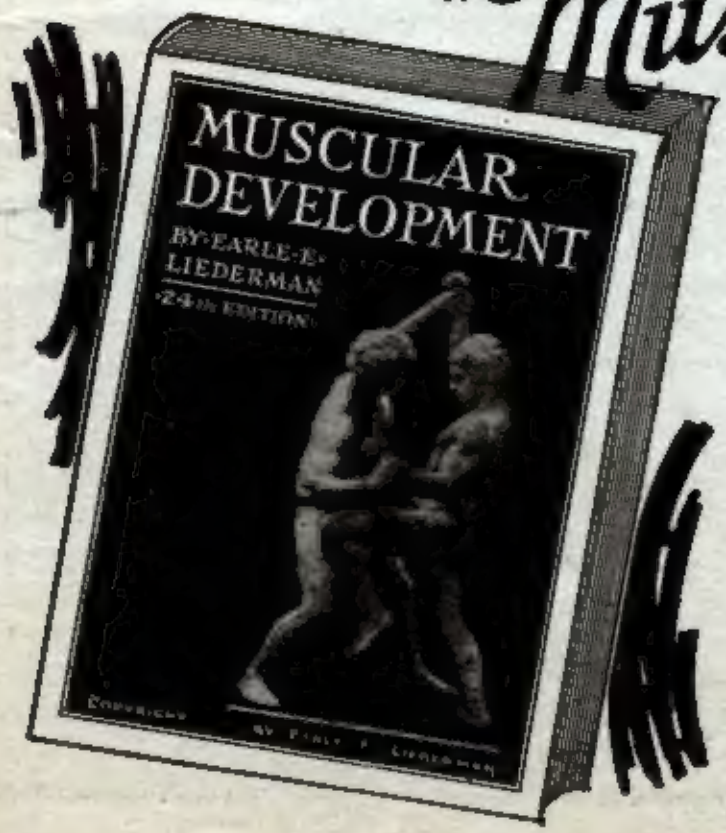

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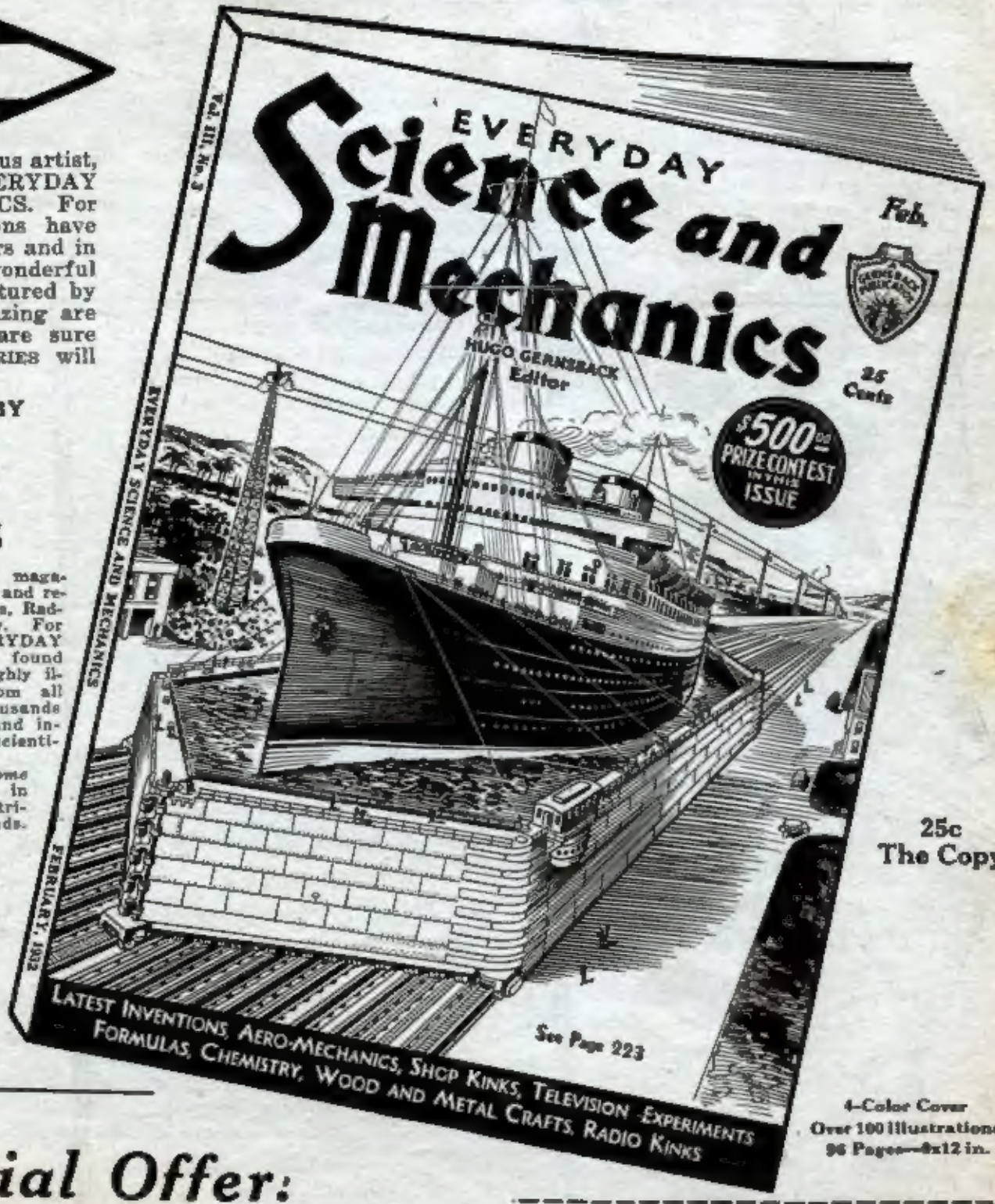

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Zoology
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These nationally-known educators pass upon the scientific principles of all stories.

THE WONDERS OF 2031

By HUGO GERNSBACK

WHEN we contemplate the future in the light of the past 100 years, and if we assume that during the next 100 years the rate of progress will be the same as it has been during the past 100 years, we are apt to say that the sky will be the limit.

If, in Napoleon's time, the wonders of 1931 had been enumerated, the author would probably have been committed to a lunatic asylum. So, in contemplating the wonders of 2031, it may be said here that the most vivid and most extravagant predictions made at present will no doubt fall far short of actual accomplishments in the future.

That science will go on in its triumphant march at the same rate as it has will hardly be denied. As a matter of fact, as new inventions are made, it will be found that progress in the various fields will be continually accelerated.

I do not share the opinion of those who will have it that 100% of the population will be living in the city in 2031; but I do foresee that, at the end of a hundred years, we will have isolated single city-buildings in the country. By this I mean isolated skyscrapers dotting the farm and forest lands all over the country. Each skyscraper, removed from the others by perhaps as much as 50 miles, will be an independent building, a small city in itself, where the farmers will live.

The building will be self-contained, and will contain department stores, motion-picture theatres, professional offices, hospitals, general supply stores, its own newspaper plant, etc., etc., to take care of the needs of the small community. This may number as high as 10,000 persons, all living under the same roof. A large number of these people may be farmers, cultivating the soil, but they will live in up-to-date apartments, in an up-to-date skyscraper, which will be a self-contained city.

Electricity for the farms may be distributed from this building. Good roads will lead to the larger centers, while each skyscraper will have its own airplane landing field for quick transportation.

In 2031 we will have become emancipated from coal and gasoline. We will use these two products, not as fuels, but for entirely different industrial purposes without, however, burning them. The fuel of the future will be one undreamt of today. Whether it will come from the cracking up of the atom, or whether it will be an entirely different fuel or force, no one can visualize at this time. One guess is as good as another. It is even possible that the "fuel" of the future will be electricity which, however, will be vastly cheaper than what it is today. How it will be generated, whether by the conversion of solar energy directly into electricity, or whether it will be taken from the tides, makes little difference.

By 2031 it will also be possible to send electrical power through open space without the necessity of wires; so that automobiles and airplanes will be fueled en route.

Our long-distance transportation problem will have been solved long before 2031; through flights through the stratosphere. Having breakfast in New York and lunch in Berlin will no longer get a two-line newspaper notice, because such things will be as commonplace as a long distance airplane trip is today.

The only fly in the ointment in 2031 will be the human being. Even today, the human machine is not able to keep up with the fast progress of science. It is to be hoped that, 100 years hence, the medical profession will be more scientific than it is today. In this I foresee that most of the diseases discovered through future medical scientific advances will have been conquered, and that those dread destroyers, heart disease and cancer, which are on the rising grade today, will have been checked. And by that time, of course, one of the most insidious of all human ills, which slows up the entire world, the common cold, will be as little heard of and thought of as the bubonic plague is today.

The Moon Era

By JACK WILLIAMSON

(Illustration by Paul)

I picked up the Mother's warm downy body and ran toward the ring of machine beings. Near them I leaped as high and as far as I could.

THE MOON ERA

By the author of "The Alien Intelligence," "Twelve Hours to Live," etc., etc.

WE WERE seated at dinner in the long dining room of my uncle's Long Island mansion. There was glistening silver plate, and the meal had been served with a formality to which I was unaccustomed. I was ill at ease, though my uncle and I sat alone at the table. The business of eating, without committing an egregious blunder before the several servants, took all my attention.

It was the first time I had ever seen my uncle, Enfield Conway. A tall man, stiffly erect, dressed severely in black. His face, though lean, was not emaciated as is usual at his age of seventy years. His hair, though almost perfectly white, was abundant, parted on the side. His eyes were blue, and strong; he wore no glasses.

A uniformed chauffeur had met me at the station, in the afternoon. The butler had sent an entirely unnecessary valet to my luxurious room. I had not met my uncle until he came down to the dining room.

"I suppose, Stephen, you are wondering why I sent for you," he said in his precise manner, when the servants had carried away the last course, leaving cigars, and a bottle of mineral water for him.

I nodded. I had been instructor of history in a small high school in Texas, where his telegram had reached me. There had been no explanation; merely a summons to Long Island.

"You are aware that some of my patents have been quite profitable."

Again I nodded. "The evidence surrounds me."

"Stephen, my fortune amounts to upwards of three and a half million. How should you like to be my heir?"

"Why, sir—I should not refuse. I'd like very much to be."

"You can, if you wish, earn that fortune. And fifty thousand a year while I live."

I pushed back the chair and rose to my feet in excitement. Such riches were beyond my dreams! I felt myself trembling.

"Anything—" I stammered. "I'll do anything you say, to earn that! It means—"

"Wait," he said, looking at me calmly. "You don't know yet what I require. Don't commit yourself too soon."

"What is it?" I asked, in a quivering voice.

"Stephen, I have been working in my private laboratory here for eleven years. I have been building a machine. The best of my brains have gone into that machine. Hundreds of thousands of dollars. The efforts of able engineers and skilled mechanics.

"Now the machine is finished. It is to be tested. The engineers who worked with me refused to try the machine. They insist that it is very dangerous.

"And I am too old to make the trial. It will take a young man, with strength, endurance, and courage.

"You are young, Stephen. You look vigorous enough. I suppose your health is good? A sound heart? That's the main thing."

"I think so," I told him. "I've been coaching the Midland football team. And it isn't many years since I was playing college football, myself."

"And you have no dependents?"

"None.—But what is this machine?"

"I will show you. Come."

He rose, agilely enough for one of his seventy years, and led the way from the long room. Through several magnificent rooms of the big house. Out into the wide, landscaped grounds, beautiful and still in the moonlight.

I followed silently. My brain was confusion. A whirl of mad thought. All this wealth whose evidence surrounded me might be my own! I cared nothing for luxury, for money itself. But the fortune would mean freedom from the thankless toil of pedagogy. Books. Travel. Why I could see with my own eyes the scenes of history's dramatic moments! Finance research expeditions of my own! Delve with my own hands for the secrets of Egypt's sands, uncover the age-old enigmas of ruined mounds that once were proud cities of the East!

We approached a rough building,—resembling an airplane hangar,—of galvanized iron, which glistened like silver in the rays of the full moon.

Without speaking, Uncle Enfield produced a key from his pocket, unlocked the heavy padlock on the door. He entered the building, switching on electric lights inside it.

JACK WILLIAMSON

JACK Williamson has properly been called a first-rate writer of colorful tales. His "Alien Intelligence" published in the early days of SCIENCE WONDER STORIES *placed him, in the estimation of our readers, in the class of A. Merrit and other masters. The present story carries on Mr. Williamson's gripping portrayal of the possibilities of science on other worlds.*

It is quite within reason that our moon, now dead and barren, was once the scene of flourishing life. Although no water now exists there, nor air shields from the moon the intense solar rays, in another age the moon may have been bountifully endowed by nature. If that is true, then the picture of the Eternal Ones drawn by our author is certainly a colorful portrayal of what the lunar civilization may have been like. And the picture of the Mother, and her exciting and bizarre adventures with our hero, are, in our opinion, among some of the best drawn by any author of science fiction.

"Come in," he said. "Here it is. I'll explain it as well as I can."

I WALKED through the narrow doorway and uttered an involuntary exclamation of surprise at sight of the huge machine that rested upon the clean concrete floor.

Two huge disks of copper, with a cylinder of bright, chromium-plated metal between them. Its shape vaguely suggested that of an ordinary spool of adhesive plaster, from which a little has been used—the polished cylinder, which was of smaller diameter than the disks, took the place of the roll of plaster.

The lower of the massive disks rested on the concrete floor. Its diameter was about twenty feet. The cylinder above it was about sixteen feet in diameter, and eight feet high. The copper disk above was the same size as the lower one.

Small round windows stared from the riveted metal plates forming the cylinder. The whole was like a building, it burst on me. A circular room with bright metal walls. Copper floor and copper roof projecting beyond those walls.

My uncle walked to the other side of this astounding mechanism. He turned a projecting knob. An oval door, four feet high, swung inward in the curving wall. Four inches thick. Of plated steel. Fitting very tightly against cushions of rubber.

My uncle climbed through the door, into the dark interior. I followed with a growing sense of wonder and excitement. I groped toward him through the darkness. Then I heard the click of a switch, and lights flashed on within the round chamber.

I gazed about me in astonishment.

Walls, floor, and ceiling were covered with soft, white fiber. The little room was crowded with apparatus. Clamped against one white wall was a row of the tall steel flasks in which commercial oxygen is compressed. Across the room was a bank of storage batteries. The walls were hung with numerous instruments, all clamped neatly in place. Sextants. Compasses. Pressure gauges. Numerous dials whose functions were not apparent. Cooking utensils. An automatic pistol. Cameras. Telescopes. Binoculars.

In the center of the room stood a table or cabinet, with switches, dials, and levers upon its top. A heavy cable, apparently of aluminum, ran from it to the ceiling.

I was gazing about in bewilderment. "I don't understand all this—" I began.

"Naturally," said my uncle. "It is quite a novel invention. Even the engineers who built it did not understand it. I confess that the theory of it is yet beyond me. But what happens is quite simple.

"Eleven years ago, Steven, I discovered a new phenomenon. I had happened to charge two parallel copper plates, whose distances apart had a certain very definite relation to their combined masses, with a high tension current at a certain frequency.

"The plates, Stephen, were in some way—how, I do not pretend to understand—cut out of the earth's gravitational field. Insulated from gravity. The effect extended to any object placed between them. By a slight variation of the current's strength, I was able to increase the repulsion, until the plates pulled upward with a force approximately equal to their own weight.

"My efforts to discover the reason for this phenomenon—it is referred to in my notes as the Conway Effect—have not been successful. But I have built this machine to make a practical application of it. Now that it is finished, the four engineers who helped design it have deserted. They refused to assist with any trials."

"Why?" I asked.

"Muller, who had the construction in charge, somehow came to the conclusion that the suspension or reversal of gravity was due to motion in a fourth dimension. He claimed that he had experimental proof of his theory, by building models of the device, setting the dials, and causing them to vanish. I would have none of it. But the other men seemed to accept his ideas. At any rate, they refused with him to have any part in the tests. They thought they would vanish, like Muller says his models did, and not come back."

"The thing is supposed to rise above the ground?" I asked.

"Quite so." My uncle smiled. "When the force of gravitation is merely suspended, it should fly off the earth at a tangent, due to the diurnal rotation. This initial velocity, which in these latitudes, amounts to considerably less than one thousand miles per hour, can be built up at will, by reversing gravitation, and falling away from the earth."

"*Falling away from the earth!*" I was staggered. "And where is one to fall."

"This machine was designed for a trip to the moon. At the beginning of the voyage, gravitation will be merely cut out, allowing the machine to fly off on a tangent, toward the point of intersection with the moon's orbit. Safely beyond the atmosphere, repulsion can be used to build up the acceleration. Within the gravitational sphere of the moon, positive gravitation can be utilized further to increase the speed. And reversed gravitation to retard the velocity, to make possible a safe landing. The return will be made in the same manner."

I was staring at him blankly. A trip to the moon seemed insane, beyond reason. Especially for a professor of history, with only a modicum of scientific knowledge. And it must be dangerous, if those engineers—. But three million—what dangers would I not face for such a fortune?

"Everything has been done," he went on, "to insure the comfort and safety of the passenger. The walls are insulated with a fiber composition especially worked out to afford protection from the cold of space, and from the unshielded radiation of the sun. The steel armor is strong enough not only to hold the necessary air pressure, but to stop any ordinary meteoric particles.

"You notice the oxygen cylinders, for maintaining that essential element in the air. There is automatic apparatus for purifying it. It is pumped through caustic soda to absorb the carbon dioxide, and through refrigerator tubes to condense the excess moisture.

"The batteries, besides energizing the plates, are amply powerful to supply lights and heat for cooking.

"That, I believe, fairly outlines the machine and the projected voyage. Now it is up to you. Take time to consider it fully. Ask me any questions you wish."

HE SAT down deliberately in the large, cushioned chair, beside the central table, which was evidently intended for the operator. He stared at me alertly, with calm blue eyes.

I was extremely agitated. My knees had a weak feeling, so that I desired to sit down also; though I was so nervous that I kept striding back and forth across the resilient white fiber of the floor.

Three millions! It would mean so much! Books, magazines, maps—I should have to economize no longer. Years—all my life, if I wished—abroad. The tombs of Egypt. The sand-covered cities of the Gobi. My theory that mankind originated in South Africa. All those puzzles that I had longed to be able to study. Stonehenge! Angkor! Easter Island!

But the adventure seemed madness. A voyage to the moon! In a craft condemned by the very engineers that had built it. To be hurled away from the earth at speeds no man had attained before. To face unknown perils of space. Dangers beyond guessing. Hurtling meteors. The all-penetrating cosmic ray. The burning heat of the sun. The absolute zero. What, beyond speculation and theory, did men know of space? I was no astronomer; how was I to cope with the emergencies that might rise?

"How long will it take?" I demanded suddenly

My uncle smiled a little. "Glad you are taking it seriously," he said. "The duration of the voyage depends on the speed you make, of course. A week each way is a conservative estimate. And perhaps two or three days on the moon. To take notes. Photograph it. Move around a little, if possible; land in several different places. There is oxygen and concentrated food to last six months But a fortnight should see you nearly back. I'll go over the charts and calculations with you."

"Can I leave the machine on the moon?"

"No. No atmosphere. And it would be too hot in the day, too cold at night. Of course an insulated suit and oxygen mask might be devised. Something like diving armor. But I haven't worked at that. You will be expected just to take a few pictures, be prepared to describe what you have seen"

I continued to pace the floor, pausing sometimes to examine some piece of apparatus. How would it feel, I wondered, to be shut up in here? Drifting in space Far from the world of my birth. Alone. In silence. Entombed Would it not drive me mad?

My uncle rose suddenly from the chair.

"Sleep on it, Stephen," he advised. "See how you feel in the morning. Or take longer if you wish."

He switched off the light in the machine. Led the way out into the shed. And from it into the brilliant moonlight that flooded the wide, magnificent grounds about the great house that would be one of the prizes of this mad adventure.

As he was locking the shed, I gazed up at the moon. Broad, bright disk. Silvery, mottled. Extinguishing the stars with argent splendor. And all at once it came over me—the desire to penetrate the enigmatic mystery of this companion world, that men have watched since the race began.

What an adventure? To be the first human to tread this silver planet. To be the first to solve its age-old riddles. Why think of Angkor, or Stonehenge, of Luxor and Karnak, when I might win the secrets of the moon?

Even if death came, what did it matter against the call of this adventure? Many men would trade their lives eagerly for such a chance.

Suddenly I was strong. All weakness had left me. All fear and doubt. A few moments before I had been tired, wishing to sit down. Now vast energy filled me. I was conscious of an extraordinary elation. Swiftly I turned to my uncle.

"Let's go back," I said. "Show me as much about it as you can tonight. I am going."

He gripped my hand tightly, without a word, before he turned back to the lock.

CHAPTER II

Toward the Moon

IT WAS in the second week, after that sudden decision came to me, that I started. At the end my uncle became a little alarmed, and tried to persuade me to stay longer, to make more elaborate preparations. I believe that he was secretly becoming fond of me, despite his brisk precise manner. I think he took the opinion of his engineers seriously enough to consider my return very uncertain

But I could see no reason for longer delay. The operation of the machine was simple; he had explained it quite fully.

There was a switch to close, to send current from the batteries through the coils that raised it to the potential necessary to energize the copper disks. And a large rheostat that controlled the force, from a slight decrease in gravity, to a complete reversal

The auxiliary apparatus, for control of temperature and atmosphere, was largely automatic. And not beyond my limited mechanical comprehension. I was certain that I should be able to make any necessary repairs or adjustments

Now I was filled with the greatest haste to undertake the adventure. No doubt or hesitation had troubled me since the moment of the decision. I felt only a longing to be sweeping away from the earth. To view scenes that the ages had kept hidden from human eyes; to tread the world that has always been the symbol of the unattainable.

My uncle recalled one of the engineers, a sallow young fellow named Gorton. On the second morning, to supplement my uncle's instruction he went over the machine again, showing me the function of every part. Before he left, he warned me.

"If you are idiot enough to get in that darned contraption, and turn on the power," he told me, "you'll never come back. Muller said so. And he proved it. So long as the batteries and coil are outside the field of force between the plates, the plates act according to schedule, and rise up in the air.

"But Muller made self-contained models. With the battery and all inside. And they didn't rise up. They went out! Vanished. Just like that!" He snapped his fingers.

"Muller said the things moved along another dimension, right out of our world. And he ought to know. String of degrees a mile long. Into another dimension. No telling what sort of hell you'll blunder into."

I thanked the man. But his warnings only increased my eagerness I was about to tear aside the veil of the unknown. What if I did blunder into new worlds? Might they not yield rewards of knowledge richer than those of the barren moon? I might be a new Columbus, a greater Balboa.

I slept a few hours in the afternoon, after Gorton had

gone. I felt no conscious need of slumber, but my uncle insisted upon it. And to my surprise, I fell soundly asleep, almost as soon as I lay down.

At sunset, we went down again to the shed in which the machine was housed. My uncle started a motor, which opened the roof like a pair of enormous doors, by means of pulleys and cables. The red light of the evening sky streamed down upon the machine.

We made a final inspection of all the apparatus. My uncle explained again the charts and instruments that I was to use in navigating space. Finally he questioned me for an hour, making me explain the various parts of the machine, correcting any error.

I was not to start until nearly midnight.

We returned to the house, where an elaborate dinner was waiting. I ate almost absently, hardly noticing the servants of whom I had been so conscious upon my arrival. My uncle was full of conversation. Talking of his own life, and asking me many questions about my own, and about my father, whom he had seen last when they were boys. My mind was upon the adventure before me; I could answer him only disjointedly. But I was aware that he had taken a real liking for me; I was not surprised at his request that I postpone the departure.

At last we went back down to the machine. The white moon was high; its soft radiance bathed the gleaming machine, through the opened roof. I stared up at its bright disk. Was it possible that in a short week I should be there, looking back upon the earth? It seemed madness! But the madness of glorious adventure!

Without hesitation, I clambered through the oval door. A last time my uncle wrung my hand. He had tears in his eyes. And his voice was a little husky.

"I want you to come back, Stephen."

I swung the door into its cushioned seat, upon massive hinges, tightened the screws that were to hold it. A final glance about the white-walled interior of the machine. All was in order. The chronometer by the wall, ticking steadily, told me that the moment had come.

My uncle's anxious face was pressed against one of the ports. I smiled at him. Waved. His hand moved across the port. He left the shed.

I dropped into the big chair beside the table, reached for the switch. With my fingers upon the button, I hesitated the merest second. Was there anything else? Anything neglected? Anything I had yet to do on earth? Was I ready to die, if so I must?

The deep, vibrant hum of the coils, beneath the table, answered the pressure of my finger. I took the handle of the rheostat, swung it to the zero mark, where gravitation was to be cut off completely.

My sensation was exactly as if the chair, the floor, had fallen from under me. The same sensation that one feels when an elevator drops very abruptly. Almost I floated out of the chair. I had to grasp at the arm of it to stay within it.

For a few moments I experienced nauseating vertigo. The white crowded room seemed to spin about me. To drop away endlessly beneath me. Sick, helpless, miserable, I clung weakly to the great chair. Falling . . . falling . . . falling. Would I never strike bottom?

THEN I realized, with relief, that the sensation was due merely to the absence of gravity's familiar pull. The machine had worked! My last, lingering doubt was killed. Strange elation filled me.

I was flying away from the earth. Flying.

The thought seemed to work a miracle of change in my feelings. The dreadful, dizzy nausea gave way to a feeling of exhilaration. Of lightness. I was filled with a sense of power and well-being, such as I had never before experienced.

I left the great chair, floated rather than walked to one of the windows.

Already I was high in the air. So high that the moonlit earth was a dim and misty plain before me. I could see many lights; the westward sky was aglow, above New York. But already I was unable to pick out the lights at my uncle's mansion.

The machine had risen through the opened roof of the shed. It was driving out into space, as it had been planned to do! The adventure was succeeding.

As I watched, the earth sank visibly. Became a great concave bowl of misty silver. Expanded slowly, as the minutes went by. And became suddenly convex. A huge dark sphere, washed with pale gray light.

Presently, after an hour, when the dials showed that I was beyond the faintest trace of atmosphere, I returned to the table and increased the power, moving the rheostat to the last contact. I looked at charts and chronometer. According to my uncle's calculations, four hours at this acceleration were required, before the controls were set again.

I returned to the window and stared in amazement at the earth, that I had left vast and silver gray and motionless.

It was spinning madly, backward!

The continents seemed to race beneath me—I was now high enough to see a vast section of the globe. Asia. North America. Europe. Asia again. In seconds.

It was madness! The earth spinning in a few moments, instead of the usual twenty four hours. And turning backward! But I could not doubt my eyes. Even as I watched, the planet seemed to spin faster. Ever faster! The continental outlines merged into dim indistinctness.

I looked away from the mad earth, in bewilderment. The firmament was very black. And the very stars were creeping about it, with visible motions!

Then the sun came into view, plunging across the sky like a flaming comet. It swung supernally across my field of vision, vanished. Appeared again. And again. Its motion became ever swifter.

What was the meaning of such an apparent revolution of the sun about the sky? It meant, I knew, that earth and moon had swung about the star. That a year had passed! But were years going by as fast as my chronometer ticked off the seconds?

Another strange thing. I could recognize the constellations of the Zodiac, through which the sun was plunging. And it was going backward! As the earth was spinning backward!

I moved to another window, searched for the moon, my goal. It hung still among spinning stars. But in its light there was a flicker, far more rapid than the flashing of the sun across the wild heavens. I wondered, then knew that I saw the waxing and waning of the moon. Months, passing so swiftly that soon the flicker became a gray blur.

The flashing past of the sun became more frequent Until it was a strange belt of flame about the strange heavens, in which the stars crept and moved like living things

A universe gone mad! Suns and planets spinning helpless in the might of a cosmic storm! The machine from which I watched the only sane thing in a runaway cosmos!

Then reason came to my rescue.

Earth, moon, sun, and stars could not all be mad. The trouble was with *myself!* My perceptions had changed The machine—

Slowly it came to me, until I knew I had grasped the truth

Time, true time, is measured by the movements of the heavenly bodies. Our day is the time of earth's rotation on its axis. Our year the period of its revolution about the sun.

Those intervals had become crowded so thick in my perception that they were indistinguishable. Then countless years were spinning past, while I hung still in space!

Incredible! But the conclusion was inevitable.

And the apparent motion of earth and sun had been backward.

That meant—and the thought was staggering—that the ages were reeling backward. That I was plunging at an incalculable rate into the past.

Vaguely I recalled magazine articles that I had read, upon the nature of space and time. A lecture. The subject had facinated me, though I had only a layman's knowledge of it

The lecturer had defined our universe in terms of space-time. A four-dimensional "continuum." Time was a fourth dimension, he had said. An extension as real as the three of what we call space, and not completely distinguishable from them. A direction in which motion would carry one into the past, or into the future.

All memory, he had said, is a groping back along this dimension, at right angles to teach of the three of space. Dreams, vivid memories, he insisted, carry one's consciousness in reality back along this dimension, until the body, swept relentlessly along the stream of time, drags it forward again.

THEN I recalled that my uncle had told me of the refusal of his engineers to try the machine. Recalled Gorton's warning. Muller, they both had told me, had declared that the machine would move along a fourth dimension, out of our world. He had made models of the machine, and they had vanished when the power was turned on.

Now I knew that Muller was right. His models had vanished because they had been carried into the past. Had not continued to exist in the present time.

And now I was moving along that fourth dimension. The dimension of time. And very swiftly, for the years went past too fast for counting.

The reversal of gravitation, it came to me, must be some effect of this change of direction in time. But I am not a scientist, I can explain the "Conway Effect" no better than my uncle, for all the wonders that it has brought into my life.

At first it was horribly strange and terrifying.

After I had thought out my explanation of the mad antics of the earth and sun and moon, and of the hurrying stars, I was, however, no longer frightened. I gazed out through my small round ports at the melting firmament with some degree of equanimity.

I continued to watch the charts my uncle had prepared, and to make adjustments of the rheostat when they were indicated by the chronometer.

And presently, feeling hungry, I toasted biscuits on the electric stove, cut off a generous slice of a cheese that I found in the supplies, opened a vacuum bottle of steaming chocolate, and made a hearty and very satisfactory meal

When I had finished, the aspect of the space about me was unchanged. Crawling stars, already forming themselves into constellations the most of which were unfamiliar. The sun a broad belt of burning gold, counting off the years too swiftly for the eye to follow. A living flame that girdled the firmament. The earth was a huge gray sphere, spinning so swiftly behind me that no detail was visible.

And even the moon, hanging in space ahead, was turning slowly. No longer was the same familiar face toward me, and toward the earth. Already I had reached a point in past time at which the moon was turning on its axis more rapidly than it revolved about the earth. The tidal drag had not yet completely stopped the moon's apparent rotation.

And if already the moon was turning, what would it be when I reached it? Hurtling into the past as I was, would I see oceans cover its dry sea-floors? Would I see an atmosphere soften the harsh outlines of its rugged mountains? Would I see life, vegetation, spread over its plains? Was I to witness the rejuvenation of an aged world?

It seemed fantastic. But it was taking place. The speed of rotation slowly increased as I watched.

The hours slipped past.

I became heavy with sleep. The two days before the departure had not been easy. I had worked day and night to familiarize myself with the machine's operation. The nervous strain had been exhausting. The amazing incidents of the voyage had kept me tense, sapped my strength.

The chart told me that no change was to be made in the controls for many hours. I inspected the gauges which showed the condition of the atmosphere in the chamber. Oxygen content, humidity, temperature, were correct. The air smelled sweet and clean. I completed the rounds, found everything in order

I adjusted the big chair to a reclining position, and threw myself upon it. For hours I slept, waking at intervals to make a tour of inspection.

Sometimes, in the following days, I wondered if I should be able to go back. Muller's models had carried no operator, of course to start them on the flight back through time to the starting point. Would I be able to reverse the time-flight? If I followed the directions on the operating chart, on the flight back, would I be flung forward through the ages, back to my own era?

I wondered. But the speculation brought forth no conclusion. A strange, unique experience was mine. Glorious adventure. Death was not too high a price to pay

It did not even occur to me to attempt to turn back

earthward, when I found that I was slipping through time. And I did not have sufficient control of the machine to have done so, had I wished. Dependent upon the chart for navigating instructions, I could not have plotted a return path from the midway point. And I knew no way to stop my flight, except by using the repulsion of the moon's reversed gravitation.

My flight lasted six days, by the chronometer.

Long before the end, the moon was spinning very swiftly. And the edges of its outline had become hazy, so that I knew it had an atmosphere.

I followed the charted directions, until I was in the upper layers of that atmosphere. The moon's surface was sliding very rapidly beneath me, and the atmosphere with it, due to the swift rotation of the satellite. Consequently, fierce winds screamed about the machine.

I hung in the atmosphere, merely using enough power to balance the moon's comparatively feeble gravitational pull, until the pressure of that rushing wind swept me with it. The mistily indistinct surface slowed, became motionless beneath me.

With power decreased still further, I settled slowly, watching alertly through the ports.

A towering, crimson mountain loomed above the mists below. I dropped toward it, increasing the power a little. At last I hovered motionless above a narrow, irregular plateau, near the peak, that seemed covered with soft scarlet moss.

Slowly I cut down the power. With hardly a shock, the machine settled in the moss.

I was on the moon! The first of my race to set foot upon an alien planet! What adventures might await me?

CHAPTER III

When the Moon Was Young

WITH the power cut off entirely, I ran to the ports. There had been no time to scan my surroundings during the uncertainties of the landing. Now I peered out eagerly.

The moonscape was as strange a sight as man had ever seen.

The machine had come down in thick green moss, that looked soft as a Persian rug. A foot deep it was. Dark green fibers closely intertwined. In an unbroken carpet it covered the sloping plateau upon which I had landed, and extended almost to the top of the rugged peak to northward.

To the south and west lay a great valley, almost level, miles across. Beyond it rose a dim range of green hills, rugged summits bare and black. A broad river, glinting white in the distance, flowed down the valley, from northwest, into the south. Then there must be an ocean in that direction.

Strange jungle covered that valley, below the green moss of the mountains. Masses of green. Walls of yellow lining the wide smooth river. Dense forests of gigantic plants, weirdly and grotesquely strange. They grew more luxuriant, taller, than similar plants could upon the earth, because a much feebler gravitation opposed their growth.

Equally strange was the sky.

Darker than on earth, perhaps because the atmosphere was thinner. A deep, pure, living blue. A blue that was almost violet. No cloud marred its liquid azure splendor.

The sun hung in the glorious eastward sky. Larger than I had known it. Whiter. A supernal sphere of pure white flame.

Low in the west was an amazing disk. A huge ball of white, a globe of milky light. Many times the diameter of the sun. I wondered at it. And realized that it was —the earth! The earth young as Venus had been in my time. And like Venus, shrouded in white clouds never broken. Were the rocks still glowing beneath those clouds, I wondered? Or had the life begun—the life of my farthest progenitors?

Would I ever see my native land again, upon that resplendent, cloud-hidden planet? Would the machine carry me back into the future, when I attempted return? Or would it hurl me farther into the past, to plunge flaming into the new-born and incandescent world?

That question I put resolutely from my mind. A new world was before me. A globe strange and unexplored. Why worry about return to the old?

My eyes went back to the broad valley below me, along the banks of the broad river, beneath the majestic range of green mountains. Clumps of gold, resembling distant groves of yellow trees. Patches of green that looked like meadows of grass. Queer, puzzling uprights of black.

I saw things moving. Little bright objects, that rose and fell slightly as they flew. Birds? Gigantic insects? Or creatures stranger than either?

Then I saw the balloons. Captive balloons, floating above the jungles of the valley. At first I saw only two, hanging side by side, swaying a little. Then three more, beyond. Then I distinguished dozens, scores of them, scattered all over the valley.

I strained my eyes at them. Were there intelligent beings here, who had invented the balloons? But what would be the object of hanging them about above the jungles, by the hundred.

I remembered the powerful prism binoculars hanging on the wall beside me. I seized them, focused them hurriedly. The weird jungle leaped toward me in the lenses.

The things were doubtless balloons. Huge spheres of purple, very bright in the sunlight. Anchored with long red cables. Some of them, I estimated, were thirty feet in diameter. Some, much smaller. I could make out no baskets. But there seemed to be small dark masses upon their lower sides, to which the red ropes were attached.

I left them and surveyed the jungle again.

A mass of the yellow vegetation filled the lenses. A dense tangle of slender yellow stems, armed with terrible rows of long, bayonet-like thorns. A thick tangle of sharp yellow thorns, it seemed, with no more stalk than was necessary to support them against the moon's feeble pull. A wall of cruel spikes, impenetrable.

I found a patch of green. A mass of soft, feathery foliage. A sort of creeper, it seemed, covering rocks, and other vegetation—though it did not mingle with the yellow scrub. Enormous, brilliantly white, bell-shaped blooms were open upon it here and there.

A flying thing darted across my vision. It looked like a gigantic moth, frail wings dusted with silver.

Then I made out a little cluster of curious plants. Black, smooth, upright stalks, devoid of leaf or branch. The tallest looked a foot in diameter, a score in height. It was crowned with a gorgeous red bloom. I noticed that no other vegetation grew near any of them. About each was a little cleared circle. Had they been cultivated?

Hours went by as I stared out through the ports, at this fascinating and bewildering moonscape.

Finally I recalled the pictures that my uncle had requested me to make. For two or three hours I was busy with the cameras. I made exposures in all directions, with ordinary and telescopic lenses. I photographed the scene with color filters. And finally I made motion pictures, swinging the camera to take a panoramic view.

It was almost sunset when I had done. It seemed strange that the day was passing so swiftly, until I looked at the chronometer, found that it was not keeping pace with the sun, and decided that the period of rotation must be rather less than twenty-four hours. I later found it to be about eighteen hours, divided into days and nights of very nearly equal length.

DARKNESS came very swiftly after sunset, due to the comparatively small size and quick rotation of the moon. The stars burst out splendidly through the clear air, burning in constellations utterly strange.

A heavy dew was soon obscuring the ports. As I later discovered, clouds almost never formed in this light atmosphere. Nearly the entire precipitation was in the form of dew, which, however, was amazingly abundant. The tiny droplets on the glass were soon running in streams.

After a few hours, a huge and glorious snow-white sphere rose in the east. The earth. Wondrous in size and brilliance. The weird jungle was visible in its silvery radiance almost as in daylight.

Suddenly I realized that I was tired, and very sleepy. The anxiety and prolonged nervous strain of the landing had been exhausting. I threw myself down upon the reclining chair, and fell into immediate oblivion.

The white sun was high when I woke. I found myself refreshed. Keenly hungry. And conscious of a great need for physical exercise. Accustomed to an active life, I had been shut up in that little round room for seven days. I felt that I must move, breathe fresh air.

Could I leave the machine?

My uncle had told me that it would be impossible, because of lack of atmosphere. But there was plainly air about me, on this young moon. Would it be breathable?

I pondered the question. The moon, I knew, was formed of materials thrown off the cooling earth. Then should its atmosphere not contain the same elements as that of earth?

I decided to try it. Open the door slightly, and sniff experimentally. Close it immediately if there seemed anything wrong.

I loosened the screws that held the heavy door, tried to pull it open.. It seemed fastened immovably. In vain I tugged at it, looked to see if I had left a screw, or if something was amiss with the hinges. It refused to budge.

For minutes I was baffled. The explanation came to me suddenly. The pressure of the atmosphere outside was much less than that within the machine. Since the door opened inward, it was the unbalanced pressure upon it that held it.

I found the valve which was to be opened to free the chamber of any dangerous excess of oxygen that might escape, and spun it open. The air hissed out noisily.

I sat down in the chair to wait. At first I felt no symptoms of the lessening pressure. Then I was conscious of a sensation of lightness, of exhiliration. I noticed that I was breathing faster. My temples throbbed. For a few minutes I felt a dull ache in my lungs.

But the sensations did not become unduly alarming, and I left the valve open. The hissing sound gradually decreased, and finally died away completely.

I rose and went to the door, feeling a painful shortness of the breath as I moved. The heavy door came open quite easily now. I sniffed the air outside. It bore a strange, heavy, unfamiliar fragrance which must have been carried from the jungle in the valley. And I found it oddly stimulating—it must have been richer in oxygen than the air in the machine.

With the door flung wide, I breathed deeply of it.

At first I had thought merely of strolling up and down for a while, in the moss outside the machine. But now I decided, quite suddenly, to hike to the lower edge of the green-carpeted plateau, perhaps a mile away, and look at the edge of the jungle.

I looked about for equipment that I should take, got together a few items. A light camera, in case I should see something worth taking. The binoculars. A vacuum bottle full of water, and a little food, so that I should not have to hasten back to eat.

And finally I took down the automatic pistol on the wall, a .45 Colt. It must have been included with the machine's equipment merely as a way of merciful escape, in case some failure made life in the little round compartment unendurable. There was only one box of ammunition. Fifty cartridges. I loaded the weapon, and slipped the remainder into my pocket.

Gathering up the other articles, I scrambled through the oval door, and stood upon the rim of the lower copper disk, drawing the door to behind me, and fastening it.

And stepped off, upon the moon.

The thick, fibrous moss yielded under my foot, surprisingly. I stumbled, fell into its soft green pile. And in scrambling to my feet, I forgot the lesser gravity of the moon, threw myself into the air, tumbling once more into the yielding moss.

In a few minutes I had mastered the art of walking under the new conditions, so that I could stride along with some confidence, going clear of the ground at every step, as if I had worn seven league boots. Once I essayed a leap. It carried me twenty feet into the air, and twice as far forward. It seemed that I hung in the air an unconscionable time, and floated down very slowly. But I was helpless, aloft, sprawling about, unable to get my feet beneath me. I came down on my shoulder, and must have been painfully bruised had it not been for the thick moss.

I realized that my strength upon the moon was quite out of proportion to my weight. I had muscles developed to handle a mass of 180 pounds. Here my weight was only 30 pounds. It would be some time, I supposed, before I could learn the exact force required to produce the result desired. Actually, I found myself adapted to these new conditions in a surprisingly short space of time.

FOR a time I was conscious of shortness of the breath, especially after violent exertion. But soon I was accustomed to the lighter air as well as the lesser gravitation.

In half an hour I had arrived at the edge of the red plateau. A steep slope fell before me to the edge of the

jungle, perhaps two-thirds of a mile farther below. A slope carpeted with the thick fiber of the green moss.

A weird scene. Clear cerulean sky, darkly, richly blue. Huge white globe of the hot earth setting beyond the farther range of green mountains. The wide valley, with the broad silvery stream, winding among golden forests, and patches of green. The purple balloons floating here and yon, huge spheres swaying on the red cables that anchored them above the jungle.

I seated myself on the moss, where I could overlook that valley of eldritch wonder. I remained there for some time, staring out across it, while I ate most of the food that I had brought, and half-emptied the bottle of water.

Then I decided to descend to the edge of the jungle.

The sun was just at the meridian—the whole of the short afternoon, four hours and a half, was yet before me. I had ample time, I thought, to go down the slope to the edge of the jungle and return before the sudden nightfall.

I had no fear of getting lost. The glittering armor of the machine was visible over the whole plateau. And the jagged, triple peak to the northward of it was a landmark which should be visible over the whole region. There should be no difficulty about return.

Nor, while I realized that the jungle might hide hostile life, did I fear attack. I intended to be cautious, and not to penetrate beyond the edge of the jungle. I had the automatic, which, I was sure, gave me greater power of destruction than any other animal on the planet. Finally in case of difficulty, I could rely upon the superior strength of my muscles, which must be far stronger, in proportion to my weight, than those of native creatures.

I found progress easy on the long, mossy incline. My skill at traveling under lunar conditions of gravity was increasing with practice: I found a way of moving by deliberate, measured leaps, each carrying me twenty feet or more.

In a few minutes I found myself approaching the edge of the jungle. But that was not so sharp a line as it had appeared from above. The first vegetation other than the moss was scattered clumps of a plant resembling the cactus of my native Southwest.

Thick, fleshy disks growing one upon another, edge to edge. They were not green, however, but of a curious pink, flesh-like color. They bore no thorns, but were studded with little black protuberances or knobs, of doubtful function. The plants I first approached were small and appeared stunted. The lower clumps seemed larger, and more thickly spaced.

I paused to examine one. Walked around it curiously. Photographed it from several angles. Then I ventured to touch it with my foot. Several of the little black knobs broke—they proved to be thin-walled vesicles, containing a black liquid. An overpowering and extremely unpleasant odor assailed me, and I retreated hastily.

A hundred yards farther on, I came upon the green creepers. Thick stems coiled like endless serpents over the ground, with innumerable fronds rising from them, terminating in feathery sprays of green. Here and there were huge white blooms, nearly six feet across, resembling great bells of burnished silver. From them, evidently, came the heavy perfume that I had noticed upon opening the door of the machine.

The creepers formed an unbroken mass of green, several feet deep. It would have been impossible to penetrate it without crushing the delicate foliage. I decided to go no farther in that direction. The creeper might have such means of protection as the malodorous sacs of the fleshy plants above. Or dangerous creatures, counterparts of terrene snakes, might lie concealed beneath the dense foliage.

For some distance I followed along the edge of the mass of creepers, pausing at intervals to make photographs. I was approaching a thicket or forest of the yellow scrub. A wall of inch-thick stems, each armed at intervals of a few inches with dagger-like thorns, all interwoven. A hundred feet high, I estimated. Interlaced so closely that a rat would have had difficulty in moving through it, without impaling himself upon a needle-sharp spike.

Then I paused to watch one of the purple balloons, which seemed swaying toward me, increasing the length of the red anchor-cable which held it to the jungle behind. A strange thing, that huge purple sphere, tugging at the thin scarlet cable that held it. Tugging almost like a thing alive, I thought.

Several times I photographed it, but its distance was so great that I feared none of the images would be satisfactory. It seemed to be moving toward me, perhaps carried by some breeze that did not reach the ground. Perhaps, I thought, it would soon be near enough for a good picture.

CHAPTER IV

The Balloon Menace

I STUDIED it closely, trying to see if it had an intelligent pilot or occupant. But I was unable to settle the point. There was certainly no basket. But black arms or levers seemed to project in a cluster, from its lowest part, to manipulate the cables.

Nearly an hour, I waited, watching it. It moved much closer during that time; until, in fact, it was almost directly overhead, and only a few hundred feet high. The red cable slanted from it back into the jungle. It seemed to be loose, dragging.

At last I got a picture that satisfied me. I decided to go on and examine the tangle of yellow thorn-brush or scrub at closer range.

I had taken my eyes from the purple balloon, and turned to walk away, when it struck.

A red rope whipped about me.

The first I knew, it was already about my shoulders. Its end seemed to be weighted, for it whirled about my body several times, wrapping me in sticky coils.

The cable was about half an inch in diameter and made of many smaller crimson strands, fastened together with the adhesive stuff that covered it. I recall its appearance very vividly, even the odd, pungent, disagreeable odor of it.

Half a dozen coils of the red cable had whipped about me before I realized that anything was amiss. Then it tightened suddenly, dragging me across the red moss upon which I had been standing. Toward the edge of the jungle.

Looking up in horror, I saw that the rope had been thrown from the purple balloon I had been watching.

Now the black arms that I had seen were working swiftly, coiling it up again—with me caught neatly on the end.

The great sphere was drawn down a little, as my weight came upon it. It seemed to swell. Then, having been dragged along until I was directly beneath it, I was lifted clear of the ground.

I was filled with unutterable terror. I was panting, my heart was beating swiftly. And I felt endowed with terrific strength. Furiously I writhed in my gluey bonds, struggled with the strength of desperation to break the red strands.

But the web had been spun to hold just such frightened, struggling animals as myself. It did not break.

Back and forth I swung over the jungle, like a pendulum. With a constantly quickening arc! For the cable was being drawn up. Once more I looked upward, and saw a sight to freeze me in dreadful stupefaction of horror.

The whole balloon was a living thing!

I saw its two black and terrible eyes, aflame with hot evil, staring at me from many bright facets. The black limbs I had seen were its legs, growing in a cluster at the bottom of its body—now furiously busy coiling up the cable that it had spun, spider-like, to catch me. I saw long jaws waiting, black and hideously fanged, drooling foul saliva. And a rapier-thin pointed snout, that must be meant for piercing, sucking body juices.

The huge purple sphere was a thin-walled, muscular sac, which must have been filled with some light gas, probably hydrogen, generated in the body of the creature. The amazing being floated above the jungle, out of harm's way, riding free on the wind, or anchored with its red web, lassoing its prey and hauling it up to feast hideously in the air.

For a moment I was petrified, dazed and helpless with the new horror of that thin snout, with black-fanged jaws behind it.

Then fear bred superhuman strength in me. I got my arms free, dragging them from beneath the sticky coils. I reached above my head, seized the red cable in both hands, tried to break it between them.

It refused to part, despite my fiercest efforts.

Only then did I recall the pistol in my pocket. If I could reach it in time, I might be able to kill the monster. And the gas should escape through the riddled sac, letting me back to the surface. I was already so high that the fall would have been dangerous, had I succeeded in my desperate effort to break the web.

The viscid stuff on the cable clung to my hands. It took all my strength to tear them loose. But at last they were free, and I fumbled desperately for the gun.

A red strand was across the pocket in which I had the weapon. I tore at it. It required every ounce of my strength to slip it upward. And it adhered to my fingers again. I wrenched them loose, snatched out the automatic. It touched the gluey rope, stuck fast. I dragged it free, moved the safety catch with sticky fingers, raised it above my head.

Though it had been seconds only since I was snatched up, already I had been lifted midway to the dreadful living balloon. I glanced downward. The distance was appalling. I noticed that the balloon was still drifting, so that I hung over a thicket of the yellow scrub.

Then I began shooting at the monster. It was difficult to aim, because of the regular jerks as the ugly black limbs hauled on the cable. I held the gun with both hands and fired deliberately, very carefully.

The first shot seemed to have no effect.

At the second, I heard a shrill, deafening scream. And I saw that one of the black limbs was hanging limp.

I shot at the black, many-faceted eyes. Though I had no knowledge of the creature's anatomy, I supposed that its highest nervous centers should be near them.

THE third shot hit one of them. A great blob of transparent jelly burst through the faceted surface, hung pendulous. The thing screamed horribly again. The black arms worked furiously, hauling me up

I felt a violent upward jerk, stronger than the regular pulls that had been raising me. In a moment I saw the reason. The creature had released the long anchor cable, which had held it to the jungle. We were plunging upward. The moon was spinning away below.

The next shot seemed to take no effect. But at the fifth, the black limbs twitched convulsively. I am sure that the creature died almost at once. The limbs ceased to haul upon the cable, hung still. But I fired the two cartridges remaining in the gun.

That was the beginning of a mad aerial voyage.

The balloon shot upward, when the anchor cable was dropped. And after it was dead, the muscular sac seemed to relax, expand, so that it rose still faster.

Within a few minutes I must have been two miles above the surface. A vast area was visible beneath me; the convexity of the moon's surface, which, of course, is much greater than that of the earth's, was quite apparent.

The great valley lay below, between the green mountain ranges. Splotched with blue and yellow. The white river twisting along it, wide and silvery. I could see into other misty valleys beyond the green ranges, and on the curving horizon were more hills, dim and black in the distance.

The plateau upon which I had landed was like a green-covered table, many thousands of feet below. I could distinguish upon it a tiny bright disk, which I knew was the machine that I had left so unwisely.

Though there had been little wind at the surface, it seemed that I rose into a stratum of air, which was moving quite rapidly into the northwest. I was carried swiftly along; the floor of the great valley glided back beneath me. In a few minutes the machine was lost to view.

I was, of course, rendered desperate at being swept away from the machine. I kept myself oriented, and tried to watch the landmarks that passed beneath me. It was fortunate, I thought, that the wind was driving me up the valley, instead of across the red ranges. I might be able to return to the machine by following down the great river, until the triple peak, near which I had left the machine, came into view. Despair came over me, however, at the realization that I was not likely to be able to traverse so vast a stretch of the unknown jungles of this world, without my ignorance of its perils leading me into some fatal blunder.

I thought of climbing the web to that monstrous body,

and trying to make a great rent in the purple sac, so that I should fall more swiftly. But I could only have succeeded in entangling myself more thoroughly in the adhesive coils. And I dismissed the scheme when I realized that if I fell too rapidly, I might be killed upon striking the surface.

After the first few minutes of the flight, I could see that the balloon was sinking slowly, as the gas escaped through the bullet-holes in the muscular sac. I could only wait, and fix in my mind the route that I must follow back to the machine.

The wind bore me so swiftly along that within an hour the triple peak that I watched had dropped below the curved horizon. But still I was above the great valley, so that I should be able to find my way back by following the river. I wondered if I could build a raft, and float down it, with the current.

The balloon was carried along less rapidly as it approached the surface. But, as I neared the jungle, it was evident that it still drifted at considerable speed.

Hanging helpless in the end of the red web, I anxiously scanned the jungle into which I was descending. Like that which I had first seen, it was of dense tangles of the thorny yellow scrub, broken with areas covered largely with the luxuriant green creeper.

Never would I be able to extricate myself alive, I knew, if I had the misfortune to fall in the thorn-brush. And another danger occurred to me. Even if I first touched ground in an open space, the balloon, if the wind continued to blow, would drag me into the spiky scrub before I could tear myself free of the web.

Could I cut myself free, within a safe distance of the ground, and let the balloon go on without me? It seemed that only thus could I escape being dragged to death. I knew that I could survive a fall from a considerable height, since the moon's acceleration of gravity is only about two feet per second,—if only I could land on open ground.

But how could I cut the web? I was without a knife. I thought madly of attempting to bite it in two, realized that that would be as hopeless as attempting to bite through a manila rope.

But I still had the pistol. If I should place the muzzle against the cable and fire, the bullet should cut it.

I reached into my pocket again, past the adhesive coil, and found two cartridges. Though they clung to my sticky fingers, I got them at last into the magazine, and worked the action to throw one into the chamber.

By the time I had finished loading, I was low over an apparently endless jungle of the yellow thorns. Swaying on the end of the web, I was swept along over the spiky scrub, dropping swiftly. At last I could see the edge, and a green patch of the great creepers. For a time I hoped that I would be carried clear of the thorns.

Then they seemed suddenly to leap at me. I threw up my arms, to shelter my face, still clinging fiercely to the pistol.

In an instant, I was being dragged through the cruel yellow spikes. There was a sharp, dry, crackling sound, as they broke beneath my weight. A thousand sharp, poisoned bayonets scratched at me, stabbed, cut.

INTOLERABLE agony racked me. I screamed. The razor-sharp spikes were tipped with poison, so that the slightest scratch burned like liquid flame. And many of the stabbing points went deep.

It seems that I struck near the edge of the thicket. For a moment I hung there in the thorns. Then, as a harder puff of wind struck it, the balloon leaped into the air, dragging me free. I swung up like a pendulum. And down again, beyond the thorny scrub—over a strip of bare sand beside the thicket.

Bleeding rapidly from my cuts, and suffering unendurable pain from the poison in my wounds, I realized that I could not long remain conscious.

Moving in a haze of agony, I seized the red cable with one hand, put the muzzle of the automatic against it, pulled the trigger. The report was crashing, stunning. My right hand, holding the gun, was flung back by the recoil—I should have lost the weapon had it not been glued to my fingers. The cable was jerked with terrific force, almost breaking my left hand, with which I held it.

And it parted! I plunged downward, sprawled on the sand.

For a few minutes I remained conscious as I lay there on the hard, cold sand—the first soil, I recall thinking vaguely in my agony, that I had seen not covered with vegetation.

The clothing had been half stripped from my tortured body by the thorns. I was bleeding freely from several deeper cuts—I remember how dark the blood was, sinking into the white sand.

All my body throbbed with insufferable pain, from the poison in my wounds. As if I had been plunged into a sea of flame. Only my face had been spared.

Weakly, dizzy with pain, I tried to stagger to my feet. But a coil of the red web still clung about my legs. It tripped me, and I fell forward again, upon the white sand

Fell into bitter despair. Into blind, hopeless rage at my inane lack of caution in leaving the machine. At my foolhardiness in venturing into the edge of the jungle. Fell into gentle oblivion. . . .

A curious sound drew me back into wakefulness. A thin, high-pitched piping, pleasantly melodious. The musical notes beat insistently upon my brain, evidently originating quite near me.

On first awakening, I was aware of no bodily sensation. My mind was peculiarly dull and slow. I was unable to recall where I was. My first impression was that I was lying in bed in my old rooming place at Midland and that my alarm clock was ringing. But soon I realized that the liquid piping notes that had disturbed me came from no alarm.

I forced open heavy eyes. What startling nightmare was this? A tangle of green creepers, incredibly profuse. A wall of yellow thorns. A scarlet mountain beyond. And purple balloons floating in a rich blue sky.

I tried to sit up. My body burst into screaming agony when I moved. And I sank back. My skin was stiff with dry blood. The deeper wounds were aching. And the poison from the thorns seemed to have stiffened my muscles, so that the slightest motion brought exquisite pain.

The melodious pipings had been abruptly silenced at

my movement. But now they rose again. Behind me. I tried to turn my head.

Recollection was returning swiftly. My uncle's telegram. The flight through space and time. My expedition to the jungle's edge, and its horrible sequel. I still lay where I had fallen, on the bare sand below the spiky scrub.

I groaned despite myself, with the pain of my stiff body. The thin musical notes stopped again. And the thing that had voiced them glided around before me, so that I could see it

A strange and wonderful being.

Its body was slender, flexible as an eel. Perhaps five feet long, it was little thicker than my upper arm. Soft, short golden down or fur covered it. Part of it was coiled on the sand; its head was lifted two or three feet.

A small head, not much larger than my fist. A tiny mouth, with curved lips full and red as a woman's. And large eyes, dark and intelligent. They were deeply violet, almost luminous. Somehow they looked human, perhaps only because they mirrored the human qualities of curiosity and pity.

Aside from red mouth and dark eyes, the head had no human features. Golden down covered it. On the crown was a plume or crest of brilliant blue. But strange as it was, it possessed a certain beauty. A beauty of exquisite proportion, of smooth curves.

Curious wing-like appendages or mantles grew from the sides of the sleek, golden body, just below the head. Now they were stiffened, extended as if for flight. They were very white, of thin soft membrane. Their snowy surfaces were finely veined with scarlet.

Other than these white, membranous mantles, the creature had no limbs. Slim, long, pliant body, covered with golden fur. Small, delicate head, with red mouth and warm dark eyes, crested with blue. And delicate wings thrust out from its sides.

I stared at it.

Even at first sight, I did not fear it, though I was helpless. It seemed to have a magnetic power that filled me with quiet confidence, assured me that it meant only good.

The lips pursed themselves. And the thin, musical piping sound came from them again. Was the thing speaking to me? I uttered the first phrases that entered my mind, "Hello. Who are we, anyhow?"

CHAPTER V

The Mother

THE thing glided toward me swiftly, its smooth round golden body leaving a little twisting track in the white sand. It lowered its head a little. And it laid one of the white mantles across my forehead.

The strange red-veined membrane was soft, yet there was an odd firmness in its pressure against my skin. A vital warmth seemed to come from it—it was vibrant with energy, with life.

The pipings came again. And they seemed to stir vague response in my mind, to call dim thoughts into being. As the same sounds were repeated again and again, definite questions formed in my mind.

"What are you? How did you come here?"

Through some strange telepathy induced by the pressure of the mantle upon my head, I was grasping the thought in the piping words.

It was a little time before I was sufficiently recovered from my astonishment to speak. Then I replied slowly, phrasing my expressions carefully, and uttering them as distinctly as I could.

"I am a native of Earth. Of the great white globe you can see in the sky. I came here on a machine which moves through space and time. I left it, and was caught and jerked up into the air by one of those purple, floating things. I broke the web, and fell here. My body was so torn by the thorns that I cannot move."

The thing piped again. A single quavering note. It was repeated until its meaning formed in my mind.

"I understand."

"Who are you?" I ventured.

I got the meaning of the reply, as it was being piped for the third time. "I am the Mother. The Eternal Ones, who destroyed my people, pursue me. To escape them, I am going to the sea."

And the thin, musical tones came again. This time I understood them more easily.

"Your body seems slow to heal its hurts. Your mental force is feeble. May I aid you?"

"Of course," I said. "Anything you can do—"

"Lie still. Trust me. Do not resist. You must sleep." When the meaning of the notes came to me, I relaxed upon the sand, closed my eyes.

I could feel the warm, vibrant pressure of the mantle on my forehead. Vital, throbbing force seemed pulsing into me through it. I felt no fear, despite the strangeness of my situation. A living wave of confidence came over me. Serene trust in the power of this being. I felt a command to sleep. I did not resist it; a strong tide of vital energy swept me into oblivion.

It seemed but an instant later, though it must have been many hours, when an insistent voice called me back from sleep.

Vitality filled me. Even before I opened my eyes, I was conscious of a new and abounding physical vigor, of perfect health; I was bubbling with energy and high spirits. And I knew, by the complete absence of bodily pain, that my wounds were completely healed.

I opened my lids, saw the amazing creature that had called itself the Mother. Its smooth golden body coiled beside me on the sand. Its large, clear eyes watching me intently, with kind sympathy.

Abruptly I sat up. My limbs were stiff no longer. My body was still caked with dried blood, clothed in my tattered garments; the sticky scarlet coils of the web were still around me. But my ragged wounds were closed. Only white scars showed where they had been.

"Why, I'm well!" I told the Mother, thankfully. "How'd you do it?"

The strange being piped melodiously, and I grasped the meaning almost at once. "My vital force is stronger than your own. I merely lent you energy."

I began tearing at the coils of the crimson web about me. Their viscid covering seemed to have dried a little; otherwise I might never have got them off. After a moment the Mother glided forward and helped.

It used the white, membranous appendages like hands. Though they appeared quite frail, they seemed able to grasp the red cable powerfully when they were folded about it.

In a few minutes I was on my feet.

Again the Mother piped at me. I failed to understand, though vague images were summoned to my mind. I knelt down again on the sand, and the being glided toward me, pressed the white, red-veined mantle once more against my forehead. An amazing organ, that mantle, so delicately beautiful. So strong of grasp when used as a hand. And useful, as I was to learn, as an organ of some strange sense.

The meaning of the pipings came to me clearly now, with the warm, vibrant mantle touching my head.

"Adventurer, tell me more of your world, and how you came here. My people are old, and I have vital powers beyond your own. But we have never been able to go beyond the atmosphere of our planet. Even the Eternal Ones, with all their machines, have never been able to bridge the gulf of space. And it has been thought that the primary planet from which you say you came is yet too hot for the development of life."

FOR many hours we talked, I in my natural voice, the Mother in those weirdly melodious pipings. At first the transference of thought by the telepathy which the wonderful mantle made possible was slow and awkward. I, especially, had trouble in receiving, and had many times to ask the Mother to repeat a complex thought. But facility increased with practice, and I at last was able to understand, quite readily, even when the white membrane did not touch me.

The sun had been low when I woke. It set, and the dew fell upon us. We talked on in the darkness. And the earth rose, illuminating the jungle with argent glory. Still we talked, until it was day again. For a time the air was quite cold. Wet with the abundant dew, I felt chilled, and shivered.

But the Mother touched me again with the white membrane. Quick, throbbing warmth seemed to flow from it into my body, and I felt cold no longer.

I told much of the world that I had left, and of my own insignificant life upon it. Told of the machine. Of the voyage across space, and back through æons of time, to this young moon.

And the Mother told me of her life, and of her lost people.

She had been the leader of a community of beings that had lived on the highlands, near the source of the great river that I had seen. A community in some respects resembling those of ants or bees upon the earth. It had contained thousands of neuter beings, imperfectly developed females, workers. And herself, the only member capable of reproduction. She was now the sole survivor of that community.

It seemed that her race was very old, and had developed a high civilization. The Mother admitted that her people had had no machines or buildings of any kind. She declared that such things were marks of barbarism, and that her own culture was superior to mine.

"Once we had machines," she told me. "My ancient mothers lived in shells of metal and wood, such as you describe. And constructed machines to aid and protect their weak and inefficient bodies.

"But the machines tended to weaken their poor bodies still further. Their limbs atrophied, perished from lack of use. Even their brains were injured, for they lived an easy life, depending upon machines for existence, facing no new problems.

"Some of my people awoke to the danger. They left the cities, and returned to the forest and the sea, to live sternly, to depend upon their own minds and their own bodies, to remain living things, and not grow into cold machines.

"The mothers divided. And my people were those that returned to the forest."

"And what," I asked, "of those that remained in the city, that kept the machines?"

"They became the Eternal Ones—my enemies.

"Generation upon generation their bodies wasted away. Until they were no longer natural animals. They became mere brains, with eyes and feeble tentacles. In place of bodies, they use machines. Living brains, with bodies of metal.

"Too weak, they became, to reproduce their kind. So they sought immortality, with their mechanical science. And still some of them live on, in their ugly city of metal—though for ages no young have been born among them. The Eternal Ones.

"But at last they die, because that is the way of life. Even with all their knowledge they cannot live forever. One by one, they fall. Their strange machines are still, with rotting brains in their cases.

"And the few thousands that live attacked my people. They planned to take the Mothers. To change their offspring with their hideous arts, and make of them new brains for the machines.

"The Mothers were many, when the war began. And my people a thousand times more. Now only I remain. But it was no easy victory for the Eternal Ones. My people fought bravely. Many an ancient brain they killed. But the Eternal Ones had great engines of war, that we could not escape, nor destroy with our vital energy.

"All the Mothers save myself were taken. And all destroyed themselves, rather than have their children made into living machines.

"I alone escaped. Because my people sacrificed their lives for me. In my body are the seed of a new race. I seek a home for my children. I have left our old land on the shores of the lake, and I am going down to the sea. There we shall be far from the Eternal Land. And perhaps our enemies will never find us.

"But the Eternal Ones know I have escaped. They are hunting me. Hunting me with their strange machines."

When day came, I felt very hungry. What was I to do for food in this weird jungle? Even if I could find fruits or nuts, how could I tell whether they were poisonous? I mentioned my hunger.

"Come," the Mother piped.

She glided away across the white sand, with easy, sinuous grace. Very beautiful, she was. Slim body, smooth, rounded. Compactly trim. The golden down was bright in the sunlight; sapphire rays played over the blue plume upon her head. The wondrous, red-veined mantles at her sides shone brilliantly.

Regarding her strange beauty, I stood still for a moment, and then moved after her slowly, absently.

She turned back suddenly, with something like humor flashing in her great dark violet eyes.

"Is your great body so slow you cannot keep up with me?" she piped, almost derisively. "Shall I carry you?" Her eyes were mocking.

FOR answer I crouched, leaped into the air. My wild spring carried me a score of feet above her, and beyond. I had the misfortune to come down head first upon the sand, though I received no injury.

I saw laughter in her eyes, as she glided swiftly to me, and grasped my arm with one of the white mantles to assist me to my feet.

"You could travel splendidly if there were two of you, one to help the other out of the thorns," she said quietly.

A little embarrassed by her mockery, I followed meekly.

We reached a mass of the green creeper. Without hesitation, she pushed on through the feathery foliage. I broke through behind her. She led the way to one of the huge white flowers, bent it toward her, and crept into it like a golden bee.

In a moment she emerged with mantles cupped up to hold a good quantity of white, crystalline powder which she had scraped from the inside of the huge calyx.

She made me hold my hands, and dropped part of the powder into them. She lifted what she had left, upon the other mantle, and began delicately licking at it with her lips.

I tasted it. It was sweet, with a peculiar, though not at all unpleasant, acid flavor. It formed a sort of gum as it was wetted in my mouth, and this softened and dissolved as I continued to chew. I took a larger bite, and soon finished all the Mother had given me. We visited another bloom. This time I reached in, and scraped out the powder with my own hand. (The crystals must have been formed for the same purpose as the nectar in terrene flowers—to attract raiders, which carry the pollen.)

I divided my booty with the Mother. She accepted but little, and I found enough of the sweetish powder in the calyx to satisfy my own hunger.

"Now I must go on down to the sea," she piped. "Too long already have I delayed with you. For I carry the seed of my race; I must not neglect the great work that has fallen upon me.

"But I was glad to know of your strange planet. And it is good to be with an intelligent being again, when I had been so long alone. I wish I could stay longer with you. But my wishes are not my master."

Thoughts of parting from her were oddly disturbing. My feeling for her was partly gratitude for saving my life and partly something else. A sense of comradeship. We were companion adventurers in this weird and lonely jungle. Solitude and my human desire for society of any sort drew me toward her.

Then came an idea. She was going down the valley to the sea. And my way led in the same direction, until I could see the triple peak that marked the location of the machine.

"May I travel with you," I asked her, "until we reach the mountain where I left the machine in which I came to your world?"

The Mother looked at me with fine dark eyes. And glided suddenly nearer. A white membranous mantle folded about my hand, with warm pressure.

"I am glad you wish to go with me," she piped. "But you must think of the danger. Remember that I am hunted by the Eternal Ones. They will doubtless destroy you if they find us together."

"I have a weapon," I said. "I'll put up a scrap for you, if we get in a tight place. And besides, I'd very likely be killed, in one way or another, if I tried to travel alone."

"Let us go, Adventurer."

Thus it was decided.

I had dropped the camera, the binoculars, and the vacuum bottle when the balloon-creature jerked me into the air. They were lost in the jungle. But I still had the automatic. It had remained in my hand—stuck to it, in fact—when I fell upon the sand. I carried it with me.

The Mother objected to the weapon. Because it was a machine, and machines weakened all that used them. But I insisted that we should have to fight machines, if the Eternal Ones caught us, and that fire could be best fought with fire. She yielded gracefully.

"But my vital force will prove stronger than your rude slaying machine, Adventurer," she maintained

We set out almost immediately. She glided off along the strip of bare sand beside the wall of thorny yellow scrub. And began my instruction in the ways of life upon the moon, by informing me that there was always such a clear zone about a thicket of the thorn-brush, because its roots generated a poison in the soil which prevented the growth of other vegetation near them.

When we had traveled two or three miles, we came to a crystal pool, where the abundant dew had collected at the bottom of a bare, rocky slope. We drank there. Then the Mother plunged into it joyously. With white mantles folded tight against her sides, she flashed through the water like a golden eel. I was glad to remove my own garments, and wash the grime and dried blood from my body.

I was donning my tattered clothing again, and the Mother was lying beside me, at the edge of the pool, with eyes closed, drying her golden fur in the sunshine, when I saw the ghostly bars.

Seven thin upright pillars of light, ringed about us. Straight bars of pale white radiance. They stood like phantom columns about us, inclosing a space ten yards across. They were not above two inches in diameter. And they were quite transparent, so I could see the green jungle and the yellow wall of thorn-brush quite plainly through them.

I was not particularly alarmed. In fact, I thought the ghostly pillars only some trick of my vision. I rubbed my eyes, and said rather carelessly to the Mother:

"Are the spirits building a fence around us? Or is it just my eyes?"

She lifted her golden, blue-crested head quickly. Her violet eyes went wide. I saw alarm in them. Terror. And she moved with astonishing speed. Drew her slender length into a coil. Leaped. And seized my shoulder as she leaped, with one of her mantles.

She jerked me between two of those strange columns

of motionless light, out of the area they enclosed.

I fell on the sand, got quickly to my feet.

"What—" I began.

"The Eternal Ones," her sweet, whistling tones came swiftly. "They have found me. Even here, they reach me with their evil power. We must go on, quickly."

She glided swiftly away. Still buttoning my clothing, I followed, keeping pace with her easily, with my regular leaps of half a dozen yards. Followed, wondering vainly what danger there might have been in the pillars of ghostly light.

CHAPTER VI

Pursuit!

WE SKIRTED a continuous wall of the spiky yellow scrub.

The strip of clear ground we followed was usually fifty to one hundred yards wide. The mass of yellow thorn-brush, the poison from whose roots had killed the vegetation here, rose dense and impenetrable to our right. To the left of our open way limitless stretches covered with the green creeper. Undulating seas of feathery emerald foliage. Scattered with huge white blooms. Broken, here and there, with strange plants of various kinds. Beyond were other clumps of the yellow scrub. A red mountain wall rose in the distance. Huge purple balloons swayed here and there upon this weird, sunlit moonscape, anchored with their red cables.

I suppose we followed that open strip for ten miles. I was beginning to breathe heavily, as violent exercise always made me do in the moon's light atmosphere. The Mother showed no fatigue.

Abruptly she paused ahead of me, and glided into a sort of tunnel through the forest of thorns. A passage five feet wide and six feet high, with the yellow spokes arching over it. The floor was worn smooth, hard-packed as if by constant use. It seemed almost perfectly straight, for I could see down it for a considerable distance. Twilight filled it, filtering down through the unbroken mass of cruel bayonets above.

"I am not eager to use this path," the Mother told me. "For they who made it are hostile things. And though not very intelligent, they are able to resist my vital force, so that I cannot control them. We shall be helpless if they discover us.

"But there is no other way. We must cross this forest of thorns. And I am glad to be out of sight in this tunnel. Perhaps the Eternal Ones will lose us again. We must hasten, and hope that we encounter no rightful user of the path. If one appears, we must hide."

I was placed immediately at a disadvantage upon entering the tunnel, for I could no longer take the long leaps by which I had been traveling. My pace became a sort of trot. I had to hold my head down, to save it from the poisoned thorns above.

The Mother glided easily before me, to my relief not in such haste as before. Slender and strong and trimly beautiful—for all her strangeness. I was glad she had let me come with her. Even if peril threatened.

I found breath for speech.

"Those ghostly bars," I panted. "What were they?"

"The Eternal Ones possess strange powers of science," came the thin, whistling notes of her reply. "Something like the television you told me of. But more highly developed. They were able to see us, back by the pool.

"And the shining bars were projected through space by their rays of force. They meant some harm to us. Just what, I do not know. It is apparently a new weapon, which they did not use in the war."

We must have gone many miles through the tunnel. It had been almost perfectly straight. There had been no branches or cross-passages. We had come through no open space. Roof and walls of yellow thorns had been unbroken. I was wondering what sort of creature it might be, that had made a path through the thorns so long and straight.

The Mother stopped suddenly, turned back to face me.

"One of the makers of the trail is approaching," she piped. "I feel it coming. Wait for me a bit."

She sank in golden coils upon the trail. Her head was raised a little. The mantles were extended stiffly. Always before they had been white, except for their fine veining of red. But now soft, rosy colors flushed them. Her full red lips were parted a little, and her eyes had become strange, wide, staring. They seemed to look past me, to gaze upon scenes far-off, invisible to ordinary sight.

For long seconds she remained motionless, violet eyes distant, staring.

Then she stirred abruptly. Rose upon tawny, golden coils. Alarm was in her great eyes, in her thin, melodious tones.

"The creature comes behind us. Upon this trail. We have scant time to reach the open. We must go swiftly."

She waited for me to begin my stumbling run, glided easily beside me. I moved awkwardly. With only the moon's slight gravitational pull to hold me to the trail, I was in constant danger from the thorns.

For tortured hours, it seemed to me, we raced down the straight passage, through the unbroken forest of yellow thorns. My heart was laboring painfully; my breath came in short gasps of agony. My body was not equipped for such prolonged exertions in the light air.

The Mother, just ahead of me, glided along with effortless ease. I knew that she could easily have left me, had she wished.

At last I stumbled, fell headlong, and did not have energy to get at once to my feet. My lungs burned, my heart was a great ache. Sweat was pouring from me; my temples throbbed; and a red mist obscured my sight.

"Go—on," I, gasped, between panting breaths. "I'll try—to stop—it."

I fumbled weakly for my gun.

The Mother stopped, came back to me. Her piping notes were quick, insistent. "Come. We are near the open now. And the thing is close. You must come!"

With a soft, flexible mantle she seized my arm. It seemed to me that a wave of new strength and energy came into me from it. At any rate, I staggered to my feet, lurched forward again. As I rose, I cast a glance backward.

A dark, indistinguishable shape was in view. So large that it filled almost the whole width of the tunnel. A dim circle of the pale light of the thorn forest showed around it.

I ran on . . . on . . . on.

MY LEGS rose and fell, rose and fell, like the insensate levers of an automaton. I felt no sensation from them. Even my lungs had ceased to burn, since the Mother touched me. And my heart ached no longer. It seemed that I floated beside my body, and watched it run, run, run with the monotonously repeated movements of a machine.

My eyes were upon the Mother before me.

Gliding so swiftly through the twilight of the tunnel. Trim, round golden body. White mantles extended stiffly, wing-like, as if to help carry her. Delicate head raised, the blue plume upon it flashing.

I watched that blue plume as I ran. It danced mockingly before me, always retreating. Always just beyond my grasp. I followed it through the blinding mists of fatigue, when all the rest of the world melted into a gray blue, streaked with bloody crimson.

I was astonished when we came out into the sunlight. A strip of sand below the yellow wall of thorns. Cool green foliage beyond, a sea of green. Sinister purple balloons above it, straining on crimson cables. Far-off, a scarlet line of mountains, steep and rugged.

The Mother turned to the left.

I followed, automatically, mechanically. I was beyond feeling. I could see the bright moonscape, but it was strange no longer. Even the threat of the purple balloons was remote, without consequence.

I do not know how far we ran, beside the forest of thorns, before the Mother turned again and led the way into a mass of creepers.

"Lie still," she piped. "The creature may not find us."

Gratefully, I flung myself down in the delicate fronds. I lay flat, with my eyes closed, my breath coming in great, painful, sobbing gasps. The Mother folded my hand in her soft mantle again, and immediately, it seemed, I felt relief, though I still breathed heavily.

"Your reserve of vital energy is very low," she commented.

I took the automatic from my pocket, examined it to see that it was ready for action. I had cleaned and loaded it before we started. I saw the Mother raising her blue-crested head cautiously. I got to my knees, peered back along the bare strip of sand, down which we had come.

I saw the thing advancing swiftly along the sand.

A sphere of bright crimson. Nearly five feet in diameter. It rolled along, following the way we had come.

"It has found us!" the Mother piped, very softly. "And my vital power cannot reach through its armor. It will suck the fluids from our bodies."

I looked down at her. She had drawn her slender body into a golden coil. Her head rose in the center, and the mantles were outspread, pure white, veined with fine lines of scarlet, and frail as the petals of a lily. Her great dark eyes were grave and calm; there was no trace of panic in them.

I raised the automatic, determined to show no more fear than she, and to give my best to save her.

Now the scarlet globe was no more than fifty yards away. I could distinguish the individual scales of its armor, looking like plates of horn covered with ruby lacquer. No limbs or external appendages were visible then. But I saw dark ovals upon the shell, appearing at the top and seeming to drop down, as the thing rolled.

I began shooting.

At such a distance there was no possibility of missing. I knelt in the leaves of the green creeper, and emptied the magazine into the globe.

It continued to roll on toward us, without change of speed. But a deep, angry drumming sound came from within it. A reverberating roar of astonishing volume. After a few moments, I heard it repeated from several points about us. Low and distant rumblings, almost like thunder.

In desperate haste, I was filling the clip with fresh cartridges. Before I could snap it back into the gun, the creature was upon us.

Until it stopped, it had presented a sphere of unbroken surface. But suddenly six long, glistening black tentacles reached out of it, one from each of the black ovals I had seen evenly spaced about the red shell. They were a dozen feet long, slender, covered with thin black skin corrugated with innumerable wrinkles, and glistening with tiny drops of moisture. At the base of each was a single, staring, black-lidded eye.

One of those black tentacles was thrust toward me. It reeked with an overpowering, fetid odor. At its extremity was a sharp, hooked claw, beside a black opening. I think the creature sucked its food through those hideous, retractable tentacles.

I got the loaded clip into the gun, hastily snapped a cartridge into the chamber. Shrinking back from the writhing tentacular arm, I fired seven shots, as rapidly as I could press the trigger, into the black-lidded eye.

The deep drumming notes came from within the red shell again. The black tentacles writhed, thrashed about, and became suddenly stiff and rigid. The sound of it died to a curious rattle, and then ceased.

"You have killed it," the Mother whistled musically. "You use your machine well, and it is more powerful than I thought. Perhaps, after all, we may yet live."

As if in ominous answer, a reverberating roll of distant drumming came from the tangle of yellow thorns. She listened, and the white mantles were stiffened in her alarm.

"But it has called to its kind Soon many will be here. We must hasten away."

THOUGH I was still so tired that movement was torture, I rose and followed the Mother, as she glided on along the sand.

Only a moment did I pause to examine the very interesting creature I had killed. It seemed unique, both in shape and in means of locomotion. It must have developed the spherical shell of red armor through ages of life in the spiky scrub. By drawing its limbs inside, it was able to crash through the thorns without suffering any hurt. I supposed it contrived to roll along by some rhythmic muscular contraction, inside the shell—such movement being much easier on the moon than it would be on earth, because of the lesser gravity. Where it could not roll, it dragged or lifted itself with the long, muscular appendages that I have called tentacles.

Since we were in the open air again, I was able to resume my progression by deliberate, measured leaps, which carried me forward as fast as the Mother could move, and with much less effort than I had spent in

running. I had a few moments of rest as I glided through the air between leaps, which compensated for the fiercer effort of each spring.

From time to time I looked back, nervously. At first I could see only the scarlet shell of the dead creature, there by the green vines where we had killed it. Always smaller, until it was hardly visible.

Then I saw other spheres. Emerging from the tangle of yellow thorn-brush. Rolling along the strip of bare soil, to congregate about the dead being. Finally I saw that they had started in our direction, rolling along rather faster than we could move.

"They are coming," I told the Mother. "And more of them than I can kill."

"They are implacable," came her piping reply. "When one of them sets out upon the trail of some luckless creature, it never stops until it has sucked the body fluids from it—or until it is dead."

"Anything we can do?" I questioned.

"There is a rock ahead of us, beyond that thicket. A small hill, whose sides are so steep they will not be able to climb it. If we can reach it in time, we may be able to scramble to the top.

"It will be only temporary escape, since the creatures will never leave so long as we are alive upon it. But we shall delay our fate, at least—if we can reach it in time."

Again I looked back. Our pursuers were rolling along like a group of red marbles, at the edge of the yellow forest. Gaining upon us—swiftly.

The Mother glided along more rapidly. The white mantles were stiffly extended from her golden sides, and aglow with rosy colors. The muscles beneath her furry skin rippled evenly, gracefully.

I increased the force of my own leaps.

We rounded an arm of the tangle of scrub, came in sight of the rock. A jutting mass of black granite. Its sides leaped up steep and bare from a mass of green creepers. Green moss crowned it. Thirty feet high it was. Perhaps a hundred in length.

Our pursuers were no longer merely marbles when we saw the rock. They had grown to the size of baseballs. Rolling swiftly after us.

The Mother glided on, a tireless strength in her graceful tawny body. And I leaped desperately, straining to drive myself as fast as possible.

We turned. Broke through the thick masses of verdure to the rock. Stood beneath its sheer wall, grim and black.

The red spheres were no more than a hundred yards behind. A sudden rumble of drums came from them, when we halted by the rock. I could see the dark ovals on their glistening red armor, that marked their eyes and the ends of their concealed tentacles.

"I can never climb that," the Mother was piping.

"I can leap up!" I cried. "Earth muscles. I'll carry you up."

"Better that one should live than both of us die," she said. "I can delay them, until you reach the top."

She started gliding back, toward the swiftly rolling spheres.

I bent, snatched her up.

It was the first time that I had felt her body. The golden fur was short, and very soft. The rounded body beneath it was firm, muscular, warm and vibrant. It throbbed with life. I felt that a strange sudden surge of energy was coming into me from contact with it.

I threw her quickly over my shoulder, ran forward a few steps, leaped desperately up at that sheer wall of black granite.

My own weight, on the moon, was only thirty pounds. The Mother, compact and strong though she was, weighed no more than a third as much. Combined, our weight was then some forty pounds. But, as she had realized, it was an apparently hopeless undertaking to attempt to hurl that mass to the top of the cliff before us.

At first I thought I should make it, as we soared swiftly up and up, toward the crown of red moss. Then I realized that we should strike the face of the cliff before we reached the top.

The face of the black rock was sheer. But my searching eyes caught a little projecting ledge. As we fell against the vertical cliff, my fingers caught that ledge. A moment of dreadful uncertainty, for the ledge was mossy, slippery.

CHAPTER VII

The Eternal Ones Follow!

MY LEFT hand slipped suddenly off. But the right held. I drew myself upward. The Mother slipped from my shoulder to the top of the rock. Grasped my left hand with one of the white mantles, drew me to safety.

Trembling from the strain of it, I got to my feet upon the soft scarlet moss, and surveyed our fortress. The moss-covered surface was almost level, a score of feet wide at the middle, where we stood, and a hundred in length. On all sides the walls were steep, though not everywhere so steep as where I had leaped up.

"Thank you, Adventurer," the Mother whistled musically. "You have saved my life, and the lives of all my people to come."

"I was merely repaying a debt," I told her.

We watched the red globes. Very soon they reached the foot of the cliff. The rumble of drums floated up from the group of them. And they scattered, surrounding the butte.

Presently we discovered that they were attempting to climb up. They were not strong enough to make the leap as I had done. But they were finding fissures and ledges upon which their long tentacles could find a grasp, drawing themselves up.

We patrolled the sides of the rock regularly, and I shot those which seemed to be making the best progress. I was able to aim carefully at an eye or the base of a tentacle. And usually a single shot was enough to send the climber rolling back down to the green jungle.

The view from our stronghold was magnificent. On one side was an endless wall of yellow scrub, with crimson mountains towering above it in the distance. On the other, the green tangle of the luxuriant creepers swept down to the wide silver river. Yellow and green mottled the slope that stretched up to scarlet hills beyond.

We held out for an entire day.

The sun sank beyond the red mountains when we had been upon the butte only an hour or two. A dark night would have terminated our adventures on the spot. But fortunately the huge white disk of the earth rose almost

immediately after sunset, and gave sufficient light throughout the night to enable us to see the spheres that persisted in attempting to climb the walls of our fort.

It was late on the following afternoon that I used my last shot. I turned to the Mother with the news that I could no longer keep the red spheres from the walls, that they would soon be overwhelming us.

"It does not matter," she piped. "The Eternal Ones have found us again."

Looking nervously about, I saw the bars of ghostly light once more. Seven thin upright pillars of silvery radiance, standing in a ring about us. They had exactly the same appearance as those from which we had fled at the pool.

"I have felt them watching for some time," she said. "Before, we escaped by running away. Now that is impossible."

Calmly she coiled her tawny length. The white mantles were folded against her golden fur. Her small head sank upon her coils, blue crest erect above it. Her violet eyes were grave, calm, alert. They reflected neither fear nor despair.

The seven pillars of light about us became continually brighter.

One of the red spheres, with black tentacles extended, dragged itself upon the top of the butte, with us. The Mother saw it, but paid it no heed. It was outside the ring formed by the seven pillars. I stood still, within that ring, beside the Mother, watching—waiting.

The seven columns of light grew brighter.

Then it seemed that they were no longer merely light, but solid metal.

At the same instant, I was blinded with a flash of light, intolerably bright. A splintering crash of sound smote my ears, sharp as the crack of a rifle, infinitely louder. A wave of pain flashed over my body, as if I had received a severe electric shock. I had a sense of abrupt movement, as if the rock beneath my feet had been jarred by a moonquake.

Then we were no longer upon the rock.

I was standing upon a broad, smooth metal plate. About its edge rose seven metal rods, shining with a white light, their positions corresponding exactly to the seven ghostly pillars. The Mother was coiled on the metal plate beside me, her violet eyes still cool and quiet, revealing no surprise.

But I was dazed with astonishment.

For we were no longer in the jungle. The metal plate upon which I stood was part of a complex mechanism, of bars and coils of shining wire, and huge tubes of transparent crystal, which stood in the center of a broad open court, paved with bright, worn metal.

About the court towered buildings. Lofty, rectangular edifices of metal and transparent crystal. They were not beautiful structures. Nor were they in good repair. The metal was covered with ugly red oxide. Many of the crystal panels were shattered.

Along the metal-paved streets, and on the wide courtyard about us, things were moving. Not human beings. Not evidently, living things at all. But grotesque things of metal. Machines. They had no common standard of form; few seemed to resemble any others. They had apparently been designed with a variety of shapes, to fill a variety of purposes. But many had a semblance to living things that was horrible mockery.

"This is the land of the Eternal Ones," the Mother piped to me softly. "These are the beings that destroyed my people, seeking new brains for their worn-out machines."

"But how did we get here?" I demanded.

"EVIDENTLY they have developed means of transmitting matter through space. A mere technical question. Resolving matter into energy, transmitting the energy without loss on a light beam, condensing it again into the original atoms.

"It is not remarkable that the Eternal Ones can do such things. When they gave up all that is life, for such power. When they sacrificed their bodies for machines. Should they not have some reward?"

"It seems impossible—"

"It must, to you. The science of your world is young. If you have television after a few hundred years, what will you not have developed after a hundred thousand?

"Even to the Eternal Ones, it is new. It is only in the time of my own life that they have been able to transmit objects between two stations, without destroying their identity. And they have never before used this apparatus, with carrier rays that could reach out to disintegrate our bodies upon the rock, and create a reflecting zone of interference that would focus the beam here—"

Her piping notes broke off sharply. Three grotesque machines were advancing upon us, about the platform. Queer bright cases, with levels and wheels projecting from them. Jointed metal limbs. Upon the top of each was a transparent crystal dome, containing a strange, shapeless gray mass. A soft helpless gray thing, with huge black staring eyes. The brain in the machine! The Eternal One.

Horrible travesties of life, were those metal things. At first they appeared almost alive, with their quick, sure movements. But mechanical sounds came from them, little clatterings and hummings. They were stark and ugly.

And their eyes roughened my skin with dread. Huge, black, and cold. There was nothing warm in them, nothing human, nothing kind. They were as emotionless as polished lenses. And filled with menace.

"They shall not take me alive!" the Mother piped, lifting herself beside me on tawny coils.

Then, as if something had snapped like a taut wire in my mind, I ran at the nearest of the Eternal Ones, my eyes searching swiftly for a weapon.

It was one of the upright metal rods that I seized. Its lower end was set in an oddly shaped mass of white crystal, which I took to be an insulator of some kind. It shattered when I threw my weight on the rod. And the rod came free in my hands, the white glow vanishing from it, so I saw it was copper.

Thus I was provided with a massive metal club, as heavy as I could readily swing. On earth, it would have weighed far more than I could lift.

Raising it over my head, I sprang in front of the foremost of the advancing machines—a case of bright metal, moving stiffly upon metal limbs, with a dome-shaped shell of crystal upon it, which housed the helpless gray brain, with its black, unpleasant eyes. I saw

little tentacles—feeble translucent fingers—reaching from the brain to touch controlling levers.

The machine paused before me. An angry, insistent buzzing came from it. A great, hooked, many-jointed metal lever reached out from it suddenly, as if to seize me.

And I struck, bringing the copper bar down upon the transparent dome with all my strength. The crystal was tough. But the inertia of the copper bar was as great as it would have been upon the earth; its hundreds of pounds came down with a force indeed terrific.

The dome was shattered. And the gray brain smashed into red pulp.

The Eternal Ones would certainly have been able to seize the Mother, without suffering any harm. And probably any other creature of the moon, that might have been brought with her on the matter-transmitting beam. But they were not equipped for dealing with a being whose muscles were the stronger ones of earth.

The two fellows of the Eternal One I had destroyed fell upon me. Though the copper bar was not very heavy, it was oddly hard to swing, because of its great inertia. The metal limbs of the third machine closed about my body, even as I crushed the brain in the second with another smashing blow.

I squirmed desperately, but I was unable to twist about to get in a position to strike.

Then the Mother was gliding toward me. Blue crest erect upon her golden head, eager light of battle flashing in her violet eyes. From her smooth, tawny sides the mantles were stiffly outstretched. And they were almost scarlet with the flashing lights that played through them. My momentary despair vanished; I felt that she was invincible.

She almost reached me. And then rose upon her glossy coils, and gazed at the brain in the transparent dome of the machine that held me, her membranes still alight.

Abruptly the machine released me; its metal limbs were relaxed, motionless.

My encrimsoned copper mace rose and descended once more, and the machine fell with a clatter upon its side.

"My mental energy is greater than that of the Eternal One," the Mother piped in calm explanation. "I was able to interfere with its neural processes to cause paralysis." She looked about us suddenly.

"But smash the delicate parts of this machine that brought us here. So that if we have the good fortune to escape, they cannot soon bring us back. I know it is the only one they have, and it does not look as if it could be quickly repaired."

MY CLUB was busy again. Delicate coils were battered beneath it. Complex prisms and mirrors and lenses shattered. Delicate wires and grids in crystal shells, which must have been electron tubes, destroyed.

The three machines we had wrecked had been the only ones near. But a score or more of others were soon approaching across the metal-paved court, producing buzzing sounds as if of anger and excitement. Some of them were near before my work was done.

Too many of them to battle. We must attempt an escape.

I stooped, picked up the Mother's warm, downy body, and ran across the platform, toward the ring of approaching machine-beings. Near them, I leaped, as high and as far as I could.

The spring carried me over them, and a good many yards beyond. In a moment I was in the middle of a worn pavement of metal. The street, almost empty of the machines, ran between ancient and ugly buildings, toward a lofty wall of some material black and brilliant as obsidian.

I hastened desperately toward the wall, moving with great leaps. The Eternal Ones followed in humming, clattering confusion, falling swiftly behind.

They had been taken quite by surprise, of course. And, as the Mother had said, dependence upon the machine had not developed in them the ability to respond quickly to emergencies.

As we later discovered, some of the machines could travel much faster than could we. But, as I have remarked, the things were not of a standard design, all differing. And none of those behind us happened to be of the fastest type.

I do not doubt that they could easily have destroyed us, as we fled. But their object would have been defeated. They wanted the Mother alive.

We reached the shining black wall well ahead of our pursuers. Its surface was smooth and perpendicular; it was fully as high as the cliff up which I had leaped with the Mother. And there was no projecting ledge to save us if I fell short.

I paused, dropping the heavy mace.

"You could toss me up," the Mother suggested. "Then leap."

There was no time for delay. She coiled quickly up into a golden sphere. I hurled her upward, like a football. She vanished over the top of the wall. I lifted the mace, threw it up, and to one side, so it would not strike her.

The Eternal Ones were close behind. A mob-like group of grotesque machines. Buzzing angrily. One of them flung some missile. There was a crashing explosion against the black wall, a flare of green light. I realized the danger of being separated from the Mother, even as I leaped.

My spring carried me completely over the wall, which was only some five or six feet thick.

I descended into a luxuriant tangle of the green creepers. Foot-thick stems covered the ground in an unbroken network, feathery leaves rising from them higher than my head. I fell on my side in the delicate foliage, struggled quickly to my feet. The green fronds cut off my view in all directions, though I could see the top of the black wall above.

Before I struck the ground I had glimpsed a vast green plain lying away eastward to the horizon. In the north was a distant line of red mountains. The city of the Eternal Ones lay westward.

I saw nothing of the Mother; I could not, in truth, see a dozen feet through the exotic jungle.

"This way," her cautious whistling tones reached me in a moment. "Here is your weapon."

I broke through the masses of delicate fronds in the direction of the sound, found the Mother unharmed, coiled in a golden circle beside the copper bar. She glided silently away; I picked up the

bar and followed as rapidly and quietly as I could.

Once I looked back, when we passed a narrow open space, and saw a little group of the Eternal Ones standing upon the black wall. They must have been looking after us, but I do not suppose they saw us.

For the rest of the day—it was early afternoon when we escaped—and all night when the jungle was weird and silvery in the earth light, and until late on the following day, we hastened on. We did not stop except to drink and bathe at a little stream, and to scrape the sweet white powder from a few of the great argent flowers we passed. We ate as we moved. The jungle of creepers was unbroken; we were always hidden in the luxuriant, delicate foliage.

At first I had been sure we would be followed. But as the hours passed and there was no sign of pursuit, my spirits rose. I doubted now that the Eternal Ones could follow the trail swiftly enough to overtake us. But I still carried the copper mace.

The Mother was less optimistic than I.

"I know they are following," she told me. "I feel them. But we may lose them. If they cannot repair the machine which you wrecked—and I am sure they cannot do it soon."

We had approached a rocky slope, and the Mother found a little cave, beneath an overhanging ledge, in which we rested. Totally exhausted, I threw myself down, and slept like a dead man.

It was early on the next morning when the Mother woke me. She lay coiled at the entrance of the cave, the frail mantles stiffened and flushed a little with rosy light, violet eyes grave and watchful.

"The Eternal Ones follow," she piped. "They are yet far-off. But we must go on."

CHAPTER VIII

An Earth Man Fights

CLIMBING to the top of the rocky slope, we came out upon a vast plateau, covered with green moss. The level surface was broken here and there by low hills; but no other vegetation was in view before us. At a distance, the plain resembled a weird desert covered with green snow.

It took six days to cross the moss-grown table-land. We finished the white powder we had carried with us on the fourth day; and we found no water on the fifth or sixth. Though, of course, those days were of only eighteen hours each, we were in a sorry plight when we descended into a valley green with the creepers, watered with a crystal stream whose water seemed the sweetest I had ever tasted.

We ate and rested for two nights and a day, before we went on—though the Mother insisted that the Eternal Ones still followed.

Then, for seventeen days, we followed down the stream, which was joined by countless tributaries until it became a majestic river. On the seventeenth day, the river flowed into a still greater one, which came down a valley many miles wide, covered with yellow thornbrush and green creepers, and infested with thousands of the purple balloon-creatures, which I had learned to avoid by keeping to the green jungle, where they could not throw their webs with accuracy.

We swam the river, and continued down the eastern bank—it was flowing generally south. Five days later we came in view of a triple peak I well remembered.

Next morning we left the jungle, and climbed up to the little moss-carpeted plateau where I had left the machine. I had feared that it somehow would be gone, or wrecked. But it lay just as I had left it on the day after I landed on the moon. Bright, polished, window-studded wall of armor, between two projecting plates of gleaming copper.

We reached the door, the Mother gliding beside me.

Trembling with a great eagerness, I turned the knob and opened it. Everything was in order, just as I had left it. The oxygen cylinders, the batteries, the food refrigerator, the central control table, with the chart lying upon it.

In a week—if the mechanism worked as I hoped it would—I should be back upon the earth. Back on Long Island. Ready to report to my uncle, and collect the first payment of my fifty thousand a year.

Still standing on the narrow deck outside the door, I looked down at the Mother.

She was coiled at my feet. The blue plume upon her golden head seemed to droop. The white mantles were limp, dragging. Her violet eyes, staring up at me, somehow seemed wistful and sad.

Abruptly an ache sprang into my heart, and my eyes dimmed, so that the bright golden image of her swam before me. I had hardly realized what her companionship had come to mean to me, in our long days together. Strange as her body was, the Mother had come to be almost human in my thoughts. Loyal, courageous, kind—a comrade.

"You must go with me," I stammered, in a voice gone oddly husky. "Don't know whether the machine will ever get back to earth or not. But at least it will carry us out of reach of the Eternal Ones."

For the first time, the musical pipings of the Mother seemed broken and uneven, as if with emotion.

"No. We have been together long, Adventurer. And parting is not easy. But I have a great work. The seed of my kind is in me, and it must not die. The Eternal Ones are near. But I will not give up the battle until I am dead."

Abruptly she lifted her tawny length beside me. The limp, pallid mantles were suddenly bright and strong again. They seized my hands in a grasp convulsively tight. The Mother gazed up at my face, for a little time, with deep violet eyes—earnest and lonely and wistful, with the tragedy of her race in them.

Then she dropped, and glided swiftly away.

I looked after her with misty eyes, until she was half across the plateau. On her way to the sea, to find a home for the new race she was to rear. With a leaden heart, and an aching constriction in my throat, I climbed through the oval door, into the machine, and fastened it

But I did not approach the control table. I stood at the little round windows, watching the Mother gliding away, across the carpet of moss. Going ahead alone . . . the last of her race. . . .

Then I looked in the other direction, and saw the Eternal Ones. She had said the machines were near. I saw five of them. They were moving swiftly across the plateau, the way we had come.

Five grotesque machines. Their bright metal cases

(Concluded on page 1093)

The Challenge of the Comet

By ARTHUR K. BARNES

(Illustration by Paul)

The door creaked, gave slightly, then burst open with a sharp crack. The ugly vapor rushed into the cabin.

THE CHALLENGE OF THE COMET

By the Author of "Lord of the Lightning"

NEWSPAPER readers will recall the curious incident of the poison fog that swept over Belgium early last winter. They will also remember how the matter suddenly dropped from sight after only one or two follow-up stories. There were good and sufficient reasons for this hushing of the affair, and these reasons are now for the first time being given to the public at large, since all possibility of a dangerous reaction has passed. The writer has seen fit to put the sequence of incidents into the form of a story—indeed, the elements of romantic adventure are so pronounced that they permit of almost no other treatment—for purposes of readability. (For obvious considerations names of persons and places are slightly altered.—A. K. B.)

ARTHUR K. BARNES

SCORES DIE IN BLACK FOG IN BELGIUM

Deadly Mist Strangles Men and Animals; Vapors Invade Paris

Paris, Dec. 5.—(Exclusive)—A black fog which crept out of the North Sea is spreading terror over northwestern Europe tonight, and in the district of the Meuse Valley in Belgium near Liege, it is responsible for more than three-score mysterious deaths.

It is in the little town of Engis of 4,000 inhabitants, a few miles from Liege, and the villages roundabout where the ghastly terror is most strongly manifest. Following the terrible storm of four days ago there has been a thick blinding fog, so thick that it has been impossible to see across the streets, and accompanied with intense cold.

On the first day eleven persons died with symptoms of suffocation, but as they were all suffering from chronic asthma, it was believed at first that the cold, thick atmosphere was too much for them.

In the last twenty-four hours, however, a number of healthy persons were mysteriously stricken down, men, women and children. Some passed out quietly in their beds and others were suddenly and fatally overcome while walking in the streets. Victims falling on the sidewalk, unable to walk, writhe for a few moments and pass into coma which usually ends in death. The effect seems to be that of simple strangulation but it is impossible to say that it is not caused by some powerful poison paralyzing to the nervous system.

Sixty-four persons are officially dead from the fog, but as reports are coming in from small hamlets in the vicinity, the probable death toll will be considerably higher. Several persons have been taken to the hospitals suffering from mysterious poison. The doctors who are administering oxygen stimulants expect to save their lives, but they confess their total inability to make a diagnosis, saying that the symptoms might be caused by any one of a dozen kinds of gas poisoning.

The strangest thing about the fog terror is that while it is confined chiefly to a few square miles on both sides of the Meuse, the inhabitants have been struck down simultaneously at widely different points. Sometimes one person out of a group of three or four is struck down, while the others are not affected. Animals, too, are subject to the strange malady, and many farmers are bringing their cattle and horses into their kitchens, nailing blankets over the windows to keep out the deadly fog and are huddling together for protection.

Chemists in preliminary efforts to analyze the air have discovered the presence of some strange and presumably deadly gas but they could not identify it. The probability of the deaths being due to some man-made gas was weakened by the fact that a couple was mysteriously asphyxiated at Calais last night apparently from the same cause as the Belgian victims. Parisians this morning gasped and complained of strange pains in their lungs, although no fatalities have been reported here. . .

IT is just a year ago, since the fog of some unknown poison gas that swept over Belgium killed some scores of peasants and roused western Europe to a state of panic. Despite the best of scientific skill, we have not yet discovered the nature of the lethal gases contained in the fog, or how they were produced.

Such incidents of the life of a race, are but indications of how little we know of our environment and the forces that control it. Should the fog and the gases carried in it have spread across the globe, a goodly portion of the race might have been killed and the remainder forced to burrow into the earth to escape extinction.

Certainly the forces behind the gas invasion could have been those that we might term fantastic. Yet if we were to look at it coolly, as our author does, we should realize that almost anything is possible. Mr. Barnes, well remembered for his "Lord of the Lightning" has used his scientist-reporter Darrell again in a thrilling adventure in the poison fog.

The managing editor of the New York *Globe* tossed the newspaper clipping on the desk and looked around. He bellowed out:

"Darrell! Darrell! Where the hell's Darrell?"

A copy boy came skidding to a stop. "Mr. Darrell's upstairs, sir."

"Get him!"

Jack Darrell, the *Globe's* star reporter, slouched into the local room and threaded his way across to the huge desk with the sign, "Manag. Ed." conspicuously tacked on it. He thrust a stick of gum into his mouth and grinned at his superior.

"Why the sweat?" he asked

The Great Man scowled, lips twitching. "None o' your lip. See this?" He thrust the despatch at the reporter. "Take the next boat over and get on to this. It looks big."

"Okay, boss. *Carte blanche?*"

"*Carte blanche.* Police aid if you need it."

"Check. I'll be seein' ya." The room quivered as Darrell's two hundred pounds thudded across the floor

and out the door. He was busily chewing gum.

The day Darrell's boat reached England, after a speedy run across the Atlantic, one of London's notorious pea-soup fogs rolled in from the channel, choking the city streets with slowly moving traffic and blocking all navigation in the Thames. The great steamer was forced to stand off just outside port to await a thinning of the fog. The reporter chafed restlessly at the delay and seized the chance for a chat when three of the crew of one of the tug-boats came aboard while the two captains conferred. After an exchange of greetings, cigarettes, and matches, Darrell asked:

"Do I understand that this fog is like the so-called poison fog that spread over Belgium a few days ago?"

The sailor gave him a queer look. "No, it's not just the same. The poison fog was black. It wasn't dangerous around here, of course. But it was black here just like where it did so much damage."

"Umm-hmm. Scary?"

"Well, it was sure weird enough. Some of the fishermen were pretty badly rattled. It's been four days already and there's still a hundred wild tales about the flying Dutchman and a lot of other sea horrors. Two nights ago a vessel went ashore on Jersey, and not a trace of the crew could be found. Ship in fine condition, too. You know how things like that get around." The man shrugged.

DARRELL smiled, but another of the sailors, an uneducated fellow, bristled. He said:

"Garn! I hearn what you says 'bout them bein' wild tales, but I seen 'um with my own eyes. What's more, even afore the fog come in,—two nights afore—I seen su'thin' you won't never believe."

"And what was that?"

"I ain't a-goin' t' tell."

Darrell was forced to wheedle the man with all his powers of persuasion before he would tell, and then the latter gave in only because Darrell offered to pay him if the information were suitable to print in the "big newspaper in New York."

"Well," the sailor spoke reluctantly, "like I says, it was a coupla nights afore the fog come. I were comin' home kinda late when I happened to look up at the sky. It were sorta cloudy, but comin' right outa one o' they clouds were a great big purple ball, big as the moon. An' it kept comin' right on down till it disappeared in the ocean 'way toward the north. There was pretty lights every little while, too, all around it."

The sailor set his lips obstinately as though prepared for disbelief. Darrell stared at him for a moment. Then he winked and grinned.

"Pre-war, eh?"

The man spat on the spotless deck. "No sech thing. I seen what I seen."

The first sailor spoke up. "I'm afraid you can't account for it that way, sir. Billings don't drink."

"No?" Darrell raised an incredulous eyebrow. Then, after a moment's thought, he filed the curious story away in one of the compartments of his mind where he kept odds and ends of knowledge when working on a case. Some time the pertinent bits stored away there would suddenly click into a pattern and give the reporter one of his famous hunches. Until then . . . Darrell shrugged. No harm in thinking it over, anyhow.

Later in the day the sun burned away much of the mist and the boat docked. Darrell immediately took a cross-channel plane and landed in Paris that afternoon. The fog pall was still hanging over most of Belgium and northern France. In Paris itself an impenetrable blanket shrouded everything and the sun shone feebly on the city gleaming with a blackening hoar crest. Darrell shivered during his short taxi ride to the offices of the University of Paris, where he had once been a student. He sighed with relief as he finally entered the big building that sheltered him from the dank, swirling mist.

Jack Darrell, since he enjoyed a considerable reputation as the "scientific reporter," had entrée in certain circles where the ordinary newspaperman did not. Much of his education had been along scientific lines, and he had a good grasp of all the popular, and some of the more obscure, phases. He had established a great number of friendships among the notables of the scientific world, and he was frequently asked to cover important experiments and conventions in preference to other and more readily available reporters. Hence, he had no difficulty in getting from the University administration the address of the one man he wanted to see,—a famous chemist and astronomer. Professor Binet, he was informed, was in Liege at the moment. Excellent. Would the clerk kindly direct Mr. Darrell to the meteorology department? He would,—second floor and third door on the right.

Once in the room he sought, Darrell lost no time in stating his problem.

"I want to know," he said, "from what direction the recent storm came that is supposed to have brought with it the poisonous fog now over Belgium."

The answer came without hesitation. "Northwest by north. A plot of the course of the storm seems to lead back across the North Sea, between the Orkneys and the Shetland Islands, and thence to heaven knows where."

"I see. Were there any unusual disturbances that might have caused such a damaging storm?"

The meteorologist shook his head. Then he smiled. "Maybe the comet did it."

Darrell laughed politely at the ancient jest. Ten years ago the professors in the department had regularly poked fun at the popular fallacy that credited comets with affecting the weather. Ten years ago the students regularly laughed obligingly at the old wheeze. They were probably going through the same routine today. Darrell sighed mentally.

"I wasn't," he said, "aware that there was any comet recently."

"Oh yes. Quiet a large one shortly before the disaster. Poor visibility, however, spoiled observation. Besides, who cares a rap about comets?" The man sounded bitter toward a world that refused to become excited over an obscure comet when hundreds of people were dying from a terrible and mysterious cause.

Darrell infused a world of sympathy and understanding in his answering, "I see."

AFTER a few more courtesies, the reporter gently pried himself loose from the rather garrulous instructor and left. He took a train for the Belgian border and prepared himself for a dismal ride. It was. The tiny train jerked along, stopping at every station and filling the cars with soot and cinders. By straining the

eyes, one might see a few hundred feet on either side of the tracks, but all else was blotted out by the long streamers of black fog that writhed away from the train in the air current created by its passage.

At each halt Darrell opened his window to catch a cautious breath of air. On every station platform there was a group of peasants, hands over their mouths, talking gloomily about the end of the world. While the train was on the move, great bleak stretches of abandoned, mist-dimmed farms met the eye. Work had ceased; industry of many kinds had been stifled. Northwestern Europe faced a severe crisis.

After changing trains at the border, the reporter passed the time away by writing up a "local color" article, filled with the anecdotes and superstitions he had run across so far, and tremendously interesting. Before he knew it, he had arrived at Liege and was stepping from the car in company with a little huddle of men and women who seemed to cling together for mutual protection. It was early evening. The train, a long ribbon of gleaming light squares, puffed away. The town was in complete silence.

Scattered oblongs of yellow light shone blurred through the mist, but no sounds could be heard. It was as though the place was deserted utterly. Darrell turned up the collar of his coat and hurried off down the slippery streets. He knew Liege very well, and preferred to walk the short distance to the address he sought. He breathed as shallowly as possible during the five minutes' journey.

Professor Paul Binet was a small man and bore a curious resemblance to a bird. His head was bald except for two tufts of hair above his ears. Two beady eyes, set deep in the sockets, flitted ceaselessly from object to object. A pointed nose looked ludicrously like the beak of a bird. All his movements were jerky and fluttering.

The Professor was preparing to retire to his combination laboratory-observatory for the evening when a sharp knock sounded. He scowled, hopped across the room, and yanked the door open suddenly. A huge form bulked in the darkness there.

"What is it?" demanded Binet.

"Boo!" said the stranger and, tossing his bag in ahead of him, the man calmly thrust the spluttering Frenchman aside and entered the house. Once in the lighted room he turned and faced Binet again. The latter threw a hand to his forehead in the extravagant gesture of the French and burst out in delight:

"*Mon Dieu! Mon Dieu!* Jacques! My old friend! Well, devil take my soul. Do come in. Here—a chair. . ." The professor erupted in a flurry of mad activity as he made his guest welcome. Finally, after settling down, Darrell spoke affectionately.

"A far cry from the University of Paris, eh, Paul?"

Binet answered solemnly, with a twinkle in his eyes. "Jacques,"—the professor's English was perfect when he wished to make it so, but always insisted his pronunciation of Jack's name was pleasanter to the ear—"Jacques, I swear to you the University lost its attraction when you left. My star pupil!" He chuckled.

"Well, the years have not done you ill, Paul. The world's leading authority in astro-chemistry should not complain."

Binet waved a hand deprecatingly. "Tut! Nothing. Too much study, I fear, is the price I have paid for fame, what little is mine. Life—the zest is gone. I live in the world of dreams. No action now, as in the old days."

Darrell painstakingly peeled the wrapper from a piece of gum, tossed it carefully into a wastebasket, and looked at his friend.

"You don't find the wholesale slaughter of your neighbors by a mysterious poison gas a matter for excitement?"

"Eh! Very interesting, perhaps."

Darrell grinned and thrust the gum into his mouth. "You have been studying the matter? . . . Good. I've been assigned to cover the affair. We must get together."

"Fine. I shall show you my tests. . ."

Darrell waved the impetuous scientist down. "Wait a minute. Were you here when the fog first came in?"

"But yes. I'm here on sabbatical leave from the University. . ."

"Good. Will you describe the mist to me?" The reporter drew a notebook and pencil from his bag and settled back. Binet spoke.

"Well, that first terrible Friday morning the fog was already in when I awoke. At first there was an impenetrable blanket which made it impossible to see more than a few inches: Then that lifted a little, leaving only a sort of indefinite haze which reduced the field of vision, but did not seem to have any consistency of its own. Floating in this haze you could see wide pockets of grayish vapor, which gathers in low places in compact masses. I noticed the papers erroneously called it a 'black fog,' but then journalists are notoriously inaccurate." Binet smiled slyly.

"Yeah?" Darrell laughed. "Never mind us; get on with the story."

"Well, this gas does not mix with the general haze, Jacques, and you can tell to an inch where the thick vapor begins. It is only those people who have breathed this who have died. I tried inhaling a tiny bit myself. Even a few wisps makes one dizzy and gives a burning sensation in the chest. I took samples and tried to analyze it." Binet frowned.

"It's not very heavy gas, slightly more so than the air. I rather believe that the only thing that holds it here is the thick fog. When the fog lifts, the gas will go, too. As for the elements," the little Frenchman shrugged, "I can't identify them. Traces of carbon monoxide, yes. Traces of cyanogen, yes. But the main portion,—" he shrugged again.

CHAPTER II

Darrell Explores

DARRELL chewed thoughtfully in silence. Then, "Rather a horrible experience."

"Oh, its only the mystery that frightens one. People writhing and gagging on the ground, clutching at their throats,—that's nothing new. But when they are struck down by an unknown and almost invisible force, that's something else again." Binet leaned forward earnestly. "I tell you, Jacques, it was like—like—well, like something from another world!"

"Another world!" The phrase burst from the reporter's lips. Jack felt a sudden tingling sensation run up his spine and pringle at the base of his scalp. He sat bolt upright, eyes thinning away to slits as he stared

into vacancy. Slowly, precisely, the isolated bits were falling into place, a pattern was being formed. The purple ball, the comet, the gas,—an imperfect pattern, but a fit nevertheless. Jack Darrell had a hunch. He swore softly to himself.

Darrell said, "Paul, you were in the observatory the night the comet came closest to earth?"

Binet started visibly. "Eh,—yes. Poor visibility. I had been watching its approach for some time."

"It was a large one?"

"I—a—made no measurements, you understand, but I would judge it to be a rather large one. Why?"

Darrell ignored the question. "How large?"

"Well, not as large as the famous Comet of 1845, which had a nucleus 8,000 miles in diameter. Nor was it as large as Donati's Comet. But it was big enough. About 5,000 miles, roughly. I have no idea as to the dimensions of the coma*. Possibly 75,000 miles."

"Quite a world in itself, then. Plenty large enough, at any rate, to harbor some form of life."

Binet's lips split in a smile, but there was no mirth in it. He squirmed uneasily in his chair. "Why, Jacques, how ridiculous! Life on a comet! Ha, ha! You are tired, my friend. Sleep now, talk tomorrow. Come."

The professor rose to lead Darrell to his room, but the latter did not move. "Sit down, Paul. You can't put me off like this. You have evidence that such life exists. You wish to hide it from me." Darrell laughed genially. "Paul, if you don't tell me what you saw the night the comet passed, I shall shake it out of you."

Binet glanced about him unhappily. "But I saw nothing, Jacques."

Darrell leaned forward and thrust a forefinger almost in the other's face. "I'll tell you what you saw. You saw a huge purple globe descend through outer space, apparently from the comet itself, and disappear into the North Sea!"

Binet gasped and sagged back in his chair, astounded. "Then—you saw it, too?"

Darrell grinned delightedly. "No. I haven't seen anything. I just put two and two together and got a hunch. But I'm surprised, Paul, that you should try to hide it from me. Why was that?"

Binet's voice was weak as he answered. "You are a journalist now, Jacques. And I know that the ethics of journalism are usually summed up in a few words. News first . . ."

". . . and to hell with everything else." Darrell smiled. "That's often enough the case, but it does not apply here."

"Then you really grasp the significance of these events?"

"I understand, Paul, that if what we believe to be true is true, then the world is facing a crisis the like of which has never been faced in the history of civilization."

For long minutes the hands of the tiny china clock on the mantel crept slowly around. Outside, save for an occasional slamming door or murmur of talk, a city of silence had settled down for the night. Within, a barely perceptible chill began to creep over the room where the only sound was of the clock ticking, ticking . . .

Binet stirred restlessly. Darrell said:

"Perhaps I put it too strongly. After all, this is mere assumption on my part . . ."

The professor waved a hand abruptly. "No. No. True enough, I myself watched the purple globe—and, by the way, it was more a pale bluish violet than purple—almost from the time it left the comet. There was no other astral body from which it conceivably could have come. I saw it only intermittently, and tried to make myself believe it was a figment of an overworked imagination. But no."

"You believe you are the only one who saw it at the time?"

"I have no idea. As I have said, visibility was poor for some days. During the first night the globe was not distinguishable unless one looked carefully. During the day it clouded up badly, and I doubt whether it would have been visible in daylight, anyhow. The second night it vanished into the North Sea before I had more than an occasional glimpse. If anyone else observed it, you may be sure that they'll keep quiet about it."

"What—what do you think it was?"

BINET jumped up and paced the floor in short, rapid strides. Now that Darrell had taken the bull by the horns, he was more than willing to face the issue squarely. He said:

"I think it was the same thing that you think it was, Jacques. A space car! Something that enabled living creatures to cross the great distances and intense cold of interstellar space from the comet to the earth. That it is comet gas we are dealing with I do not doubt, since both carbon monoxide and cyanogen are found in comet tails, in almost identical percentages as found in the 'poison fog.'"

Darrell grunted deep in his throat. "You understand, Paul, that further conversation will get us nowhere. From now on—action! I'll see what I can do to locate the source of this peril, whatever it may be; you continue your experiments and figure out some way to deal with it."

A crafty look flickered across Binet's face and Darrell knew he had already gone far in that direction. The reporter stepped to the door and tossed his wad of gum into the darkness. Ten minutes later both men were sound asleep.

Next morning, when Darrell awoke, the sun had filled his room with molten gold. Stumbling sleepily to the window, he looked out and found that the fog had vanished utterly. As far as the eye could see, from Binet's little place on the edge of the town, the Belgian countryside was barren of any trace of mist or gas, bathed in dew sparkling in the early morning light.

The simple peasants were again going about their work, happy prayers of thanksgiving on their lips. Already the dark days were half forgotten. Darrell's smile, as he turned from the window, was a bit grim when he thought of the invisible cloud of menace still brooding over them, the more terrible because unseen and unknown.

Not far from Liege was a small airport and Darrell, with the proverbial power of the press, judiciously pulled a number of strings and procured the use of a small cabin plane for the day. With no other pilot than himself, shortly after nine o'clock, the stout little airship roared away from the field and headed northwest toward the ocean. A short time passed, and Darrell left the land,

*Professor Binet was here referring to the cloud-like mass that surrounds the nucleus of a comet.

struck out across the vast wrinkled blue stretches of the North Sea, following a carefully charted course as indicated by the maps fastened to the instrument panel.

Hours went by, and the reporter's only companionship was the steady droning of the sturdy engine. Far away on the left the craggy outlines of the north Scottish coast crept by, softened by a bluish haze. Ahead on either side of his course, two dull splotches on the horizon showed the Orkneys and the Shetland Islands. Between them lay one lonely outpost, a tiny bit of earth devoted to goat-raising, Ware Isle. Beyond that lay nothing. . .

Darrell suddenly jerked upright in his seat and snatched at his binoculars. There was something strange about Ware Isle. The reporter strained his eyes as he approached nearer and nearer. The island looked uncommonly large, but rather tenuous, somehow. As though it were not all solid rock. . . The watcher's breath was suddenly expelled in a long whistle. Ware Isle was covered from one end to the other with a dark blue-gray gas that piled high above it in dense, impenetrable banks. It billowed sluggishly as Darrell's plane drew near, but seemed to be fastened down in some fashion so it was unable to spill off the island into the sea to be carried away by the slight breeze. It resembled, thought the observer incongruously, a circus tent in the wind.

Darrell circled down close, throttled the engine, and examined the curious phenomena carefully. There appeared to be a slow but steady dissipation of the gas from above, but the total volume did not perceptibly decrease. The answer to that was easy, muttered Darrell to himself. More was being generated below. But how; by whom?

The reporter squirmed in his seat. He searched long for some evidences of the "purple globe" of which he had heard, but was forced to conclude that it had either been destroyed or was hidden down in that deadly cloud below. Nor was he able to catch sight of any movement that might indicate living creatures of some sort. At this juncture a glance at the gasoline gauge warned him to be getting back. Reluctantly he turned the plane about and headed for Belgium again. When he turned into the little yard that fronted Professor Binet's bungalow, the dying sun was throwing a fan of crimson pillars into the sky.

After a hastily bolted meal, Darrell mumbled something unintelligible and hurried out into the night. The discourtesy went unnoticed by the scientist, who frowningly returned to his laboratory. Darrell's first call that evening was to the administrative buildings, where he made inquiries concerning the geography of Ware Isle. He was referred to the university. Here he was bandied about from department to department in the inimitable European manner, but by dint of an inexhaustible patience, the reporter finally managed to secure the information he desired. Ware Isle, in brief, was a low, rocky hump, with a narrow strip of beach on the southwest side which would permit of an airplane landing under favorable conditions. Darrell was chewing vigorously as he left the school.

Jack's next stop was at the telegraph office near the station. Here he devised the following radiogram:

MANAGING EDITOR NEW YORK GLOBE

TERRIBLE CATASTROPHE LOOMS STOP FOR GODS SAKE HUSH MATTER UP STOP KILL ALL FOLLOWUP STORIES STOP CONTACT AP WORLD WIDE NEWS ETC AND TELL TO LAY LOW AND AVERT PANIC STOP

DARRELL

As the girl clerk counted over the words in the message, she took pity on him and said:

"You can make this cheaper by omitting these 'stops.'"

DARRELL smiled grimly. "Girlie," he said, "those 'stops' are just what I want to say."

Some purchases at a clothier's and a gunsmith's completed the newspaperman's round of visits for the evening, and he went back to the cottage tired but satisfied. Binet was working in the laboratory when Darrell entered and he shouted out.

"Come back here, Jacques. Enter my little museum; see the sights; ten cents an hour." The high pitch of his voice betrayed his excitement. Darrell entered the long back room and stood diffidently by the doorway. It was oddly shaped. Three times as long as it was wide, the front part of the room had a low-hanging ceiling. At the rear end, the room widened abruptly and the ceiling swept up into a glass-roofed dome, with movable sections through which to thrust the telescope that squatted heavily on the floor. Two long benches ran down either wall, cluttered with the chemist's familiar apparatus,—test tubes, retorts, beakers, vacuum tubes, coils, generators, and a hundred odds and ends identifiable only to the initiated. Binet hurried up to his friend.

"You were successful today, Jacques?"

"Eminently so." Darrell gave a brief sketch of his activities.

The professor chuckled and rubbed his hands. He bounced up and down on one foot eagerly as he spoke. "Tomorrow,—it will be a highly interesting day, eh?"

Darrell fumbled for a package of gum. "Interesting?" he asked drily. "It's gonna be the riskiest few hours either of *us* have ever seen." It was characteristic of them that they took for granted that both would return to the island on the morrow.

The little Frenchman chortled. Darrell said:

"The old war-horse is feeling his oats, I see."

Both laughed, and Binet then sobered. "We must be methodical. It would be best if we were to recapitulate the salient facts before I show you what I have done today."

"Excellent. We know that some sort of creatures, living on the comet, constructed a space-car and traveled to the earth, landing on Ware Isle in the North Sea. Presumably this car contained the deadly gas with which we are familiar and yet not familiar enough. Somehow the space-car itself was broken up or else hidden on the island. Now our visitors are established on Ware Isle and are manufacturing the gas which destroyed human life so effectively when carried to the continent by storm."

Binet wriggled his fingers reflectively. "You mix assumption with probable truth very neatly, but your summary does well enough. The globe,—a shimmering

pale bluish-violet light—was formed by an electronic stream passing clear around the ball of gas and acting as a shell to hold it in. The blue-violet color was due to the action of the gas with which the stream was associated."

"An electronic stream!" Darrell's tone was skeptical. "Why—"

"Just so," interrupted Binet. "It shows a remarkable advancement in electrical science to control electrons to such an extent. However this may be, I have proven to my own satisfaction that such is the case. Sit down and listen."

Darrell perched gingerly on an acid-stained wooden chair.

"It is common knowledge," said the scientist, "that the electronic stream, if it could be produced in sufficient volume, would offer a source of power far greater than anything yet devised for travel through space. Thus far physicists have been unable to produce enough to be of practical value, but this does not mean that other races on other worlds may not be able to do so.

"Indeed, the comet creatures *have* done so, because that is how they propelled their unique space-car from the comet to the earth. How do I know? Well, when they approached the earth's atmosphere it was necessary to decelerate, eh? And to decelerate it is essential that they throw out an electronic stream in front of the ship as a brake to retard speed.

"When this happened, within the thin outer stratosphere, the freed electrons were attracted by the earth's magnetic lines of force and for a short period whirled about them. The result was a miniature aurora borealis surrounding the car. This was clearly observable every time the navigators let loose a blast of the repelling stream from in front."

Darrel nodded comprehendingly. The potential power of the electronic stream was an old story to him, and he followed Binet's exposition without difficulty. The scientist continued.

"As further evidence for the existence of the electronic stream, I conducted a small experiment." Binet pointed to a bit of apparatus on one of the benches, including a small flask of the dark gray vapor, a small piece of platinum foil with electric wiring to heat it, and some devices, unfamiliar to the reporter, to control the experiment. "By running a small stream through the gas I find the color is identical with that observed on the violet globe that traveled from the comet to the earth."

Darrell jotted down a few notes and said:

"Perfectly clear. Is there anything else?"

Binet picked up another piece of apparatus, resembling somewhat a heavily-built noseguard. He handed it to Jack.

"You know what this is?" he asked.

The reporter smiled and nodded. "A home-made gas mask. Obviously not an oxygen mask. Therefore you've been able to construct a filter that will enable one to breathe the air right through the poison mist. I congratulate you."

"Precisely, Jacques. And with the mask I've fixed up a pair of goggles with leather guards to protect the eyes. Though I'm not sure, it may be that prolonged exposure to the gas will injure the eyeball."

"Even more excellent, Paul. You've done well."

The little Frenchman grew pink behind the ears and waved a hand deprecatingly. "Tut! Don't speak of these things. Me, I'm going to bed and rest for tomorrow. You, too, Jacques. You are tired."

Jack looked at his friend curiously as he rose to go to his room.

"Have you," he asked, "any idea what we are going to do tomorrow? It would hardly be discreet to fly out to that island of death and deliberately deliver ourselves into the hands, or paws, of these creatures."

Binet's eyes sparkled and rolled laughably. "What do we care? You are young. And I,—well, perhaps the old master has yet another rabbit up his sleeve, eh?"

He playfully punched the reporter's bulky arm and shoved him from the room. Darrell yawned and pulled out his shirt. Kicking off his shoes, he scuffed to bed, flung himself down, and slept heavily until dawn.

At six o'clock in the morning the two men arrived at the airport and stepped up to Darrell's hired plane. They carried a few packages,—lunch, two gas masks, some chemists' apparatus. The professor also held under his arm a small black box about the size of a camera. Darrell noticed it and asked casually:

"Expect to get any pictures in that dark fog?"

Binet's bird-like head peered up at the other. "Pictures? No, my friend, this is not a picture camera." He aimed the box at Darrell, and the latter saw that instead of the usual single shuttered hole in the ordinary kodak, this box had two openings. He frowned, shrugged, and climbed into the plane, intent on warming the motor.

CHAPTER III
On the Island

SOME hours later the throbbing of the airplane engine again made itself heard over Ware Isle. Binet eagerly scrutinized the place, but could see nothing but what Darrell had seen the day before. The great mass of dark vapor still heaved restlessly, covering the island. The blue sea lapped quietly at the blurred shoreline. All was still.

Quickly and silently the two men made their simple preparations before the descent into the fog. The gas masks were strapped on; Binet's crudely constructed goggles were also fitted over the eyes. For a brief moment the friends looked at each other steadily. A short, fierce grip of the hands, and Darrell depressed the nose of the plane.

For a space, the whirling propeller sheared a clear path through the dark cloud-like mass, but as the plane continued downward, it was suddenly swallowed up in a vast, stifling gray shroud. The engine coughed, sputtered jerkily, and whispered itself into silence. The ship lurched sickeningly, plunged. The reporter leveled off abruptly, muttered with eyes upraised, and executed a perfect three-point landing. Flying blindly, over absolutely unknown territory, Darrell struck the one tiny stretch on the entire island suitable for safe landing!

Professor Binet, pale beneath his mask, turned to the other.

"Jacques," he said with a catch in his voice, "never in my life have I seen such a bit of flying. Never."

Darrell lifted a wafer of gum to his mouth, and threw it aside because of the gas mask on his face. "Luck of the Irish, Paul."

A faint glow filtered through the windows of the little cabin, and both men turned to peer into the impalpable dusk that surrounded them. Darrel jumped back as though burnt.

"C——!" he burst out. "Look at that monster!"

Binet scurried to Jack's window and stared out. Hovering near the plane was a vast bulk of dirty brown, slimy flesh. Scattered over it were occasional black specks. Five or six feet long, and almost as wide, the creature appeared to be a gigantic, bloated slug. Stranger still, it did not rest on the ground, but floated in the gas, propelling itself by short bursts of the gray vapor from one end! For some minutes the hideous thing moved around the plane as though inspecting it carefully, then suddenly sped away with a great smoke-like blast from the tail.

Darrell turned to look at Binet. "Well," he said, "I'll be damned."

The professor smiled slightly. "Did you expect to find a race of human beings here?"

"We-ell, no. Of course not. But these fantastic things. . . Are you trying to tell me that you knew what we'd find?"

"Not at all. But I assumed it would be something totally new to us; hence I am not surprised to find these surprising creatures." He pointed to the opposite windows of the cabin. "There's a little token of our visitors' good-will lying on the beach outside."

Darrell looked out. In a crumpled heap on the sand lay what had once been a goat-herder. He had been dead for several days, and most of the features had disappeared in a welter of putrefaction. The chest had caved in. Darrell retched and turned away.

"You will notice," said the scientist coolly, "that the gas appears to have completely destroyed the lungs and surrounding tissues. . ."

The reporter, still slightly sick, found time to marvel at the sudden change in his friend. Formerly irritable, jumpy, filled with a nervous energy, now a stone effigy could be no more cold and impassive.

"Here comes our friend again. . ."

Both men pressed their faces to the window. The huge slug-like creature had returned, and behind it came nine or ten others, almost identical in shape and movement. Observed from the front, it seemed as if ten round pairs of huge lips, fish-like, were sucking at the ends of invisible pipes. They slowly surrounded the plane and hung nearly motionless in the thick atmosphere, with occasional tiny puffs of vapor to keep from settling to the ground. Incredible. Darrell began to laugh hysterically, then stopped abruptly.

"These damn' things look like a bunch o' nightmare cigars."

Binet's cool tones acted as a douche on Darrell's shaken nerves.

"They are bloated so as to be light enough to navigate through this gas. The propelling is accomplished by means of drawing the gas in at one end of the body and expelling it violently from the other, much as some of our sea animals, particularly shell-fish, swim. In effect, a natural modification of the rocket principle, which perhaps explains their use of that principle in space flight." The Frenchman leaned casually back in the passenger's seat as if lecturing to a class.

"YEAH?" Darrell grinned faintly and turned again to the window. One of the huge, misshapen comet creatures had settled gently to the ground and was approaching the airship. The reporter swore again, even more violently than before, and beckoned to Binet. Even the latter was startled to see the animal's mode of progress on land. A piece of its flesh seem to bulge, stretch forward, and extend at least two feet from the body. Then the rest of the body flowed into the outstretched portion without visible effort of any kind! The process was repeated regularly, at intervals of about ten seconds. Advance was slow and sure. Jack, popeyed, became aware of Binet's voice.

". . . proves them to be very simple, structurally. The one-celled amœba moves about in the same fashion, by thrusting forward the pseudopod, and flowing into it. These creatures have no more than a few cells to each individual. Doubtless those dark specks that show here and there are the nuclei of the cells."

"I've heard it said," murmured Darrell, "that the single-celled animal, given the proper environmental and evolutional conditions, would develop into the most intelligent of all forms of life."

"Quite possible. And it seems, Jacques, to be borne out by the present instance. These beings are doubtless past masters of electrical science, so much so that they can control the electronic stream."

Darrell had become himself again under the soothing influence of Binet's calm voice.

"Yes," he said, and turned to the window. Then, "Well, I'll be——. Get a load of this."

The comet creature on the ground was preparing to force open the cabin door. A few feet from the front of the plane a long, shallow rock pushed through the sand, sleek and black from long ages of washing by the sea, barely visible in the dull, smoky atmosphere. One end of the animal fastened itself to this rock. The other end, gaping horribly as it shaped itself into a sort of suction cup, plastered onto the door. Slowly the creature contracted in the center, bulging grotesquely. The door creaked, gave slightly, held for a moment, then burst open with a sharp crack. The ugly gray vapor rushed into the cabin.

The reporter remarked conversationally, "The gas mask is excellent, Paul. There is no discomfort at all. I trust yours is all right."

Binet chuckled. "Fine, Jacques, fine. But I see our visitors wish to make better connections." He pointed to the open doorway.

Another of the comet creatures had floated down, fastened itself to the door sill for purchase, and was inserting a long pseudopod into the cabin. Darrell shrank back to the farther wall, but in vain. The slimy tentacle pursued him and wrapped around his waist. Darrell felt a curious but unmistakable tingling sensation. He spoke to Binet.

"I say, Paul, this beast is electrical. I can feel a current even through my coat. Something on the order of the electric eel, I suppose."

The little Frenchman nodded interestedly. "Not surprising. If they are capable of generating a current of sufficient strength with their bodies alone, it's not to be wondered at that they have progressed far in that direction."

"That's all very well, Paul, but the sensation of having

one of these things put an arm around me is not too pleasant. And I don't intend to. . ." The reporter tore free and whipped a hand to his pocket. There was a crackling noise, and for a single dazzling instant a streak of pale blue flame split the air between the body of the creature and Darrell's coat. The reporter stiffened and fell to the floor, a look of frozen amazement on his face. The stench of burnt leather filled the cabin.

Binet's perspective was abruptly changed. No longer did the strange beasts seem merely curious specimens, harmless subjects for articles in the scientific journals. Instead, they had become invested with a definite, tangible menace, a challenge to the supremacy of man. The professor made no move as a second of the comet beings fastened a pseudopod on his arm and gently tugged toward the doorway.

He followed without resistance. Out of the corner of his eye he could see his friend dazedly rising to his feet, all fight for the moment shaken from him. A minute later, and both were being conducted in an unbelievable caravan across the beach and toward the interior of the island, escorted by a dozen of the huge things floating slowly on all sides.

THE bedding ground for the alien race was located in a low spot back from the sea a short distance. The depression was covered over with an inch or two of muddy water, turning it into a sheet of ugly slime, which gave off an odor so nauseating as to be almost unbearable even with the masks on. Two of the creatures were wallowing slowly in the miniature swamp.

Off to one side, on a little hillock, rested a large ball of some leaden colored metal. It blended so well with the gas that the two men could scarcely distinguish the outlines from a distance of ten yards. It seemed about fifteen or twenty feet in diameter, perhaps larger, and the surface was broken by a number of apertures. From the upper of these holes, a steady stream of the blue-gray vapor slowly rose. As the two friends became aware of a faint humming from the generator, they exchanged significant glances.

"Who are you?"

"Eh?" Darrell jerked his head around. Binet was looking at him with an inquiring expression. "Did you speak?"

The scientist shook his head. "No. I thought you said something."

"Are you Earth beings?"

Amazement widened the eyes and twisted the faces of the two men into ludicrous resemblance. Neither had spoken. Binet said:

"Wonders, Jacques, show no sign of ceasing. Thought transference! A bit startling."

"Thought transference," repeated Darrell mechanically. "But it was in English . . ."

The Frenchman chuckled. "No, my friend, not in English. Merely a thought projected into your mind which became automatically translated into your native medium of expression."

"But how—"

Binet waved a hand. "Are you asking me? Eh! I don't know. Psychologists tell us that the thought processes are associated with electrical impulses, somehow or other. Beyond that I cannot go."

"Can you understand?"

Binet turned to face the creature from whom these questions seemed to emanate, saying, out of the corner of his mouth, to Darrell,

"Apparently they cannot intercept thought waves except those that are directed purposely to themselves."

The professor did his best to project a coherent message from his mind. "We are Earth beings who have been sent to learn why you have come and the manner of your coming through space."

For a short time the man's mind seemed blank. Then came the answering thought. "We are from the comet [illegible]* and were forced to leave our world for another because of the disintegration of the nucleus on our native comet. This group is acting as an advance guard to prepare this earth for my people to live on. When the comet returns, in a hundred years or so, the final transference will take place, with my race completely abandoning our rapidly breaking birthplace."

"Would you be willing to tell us about yourselves?"

The creature swelled up, poked out a dirty, dust-brown pseudopod, and led the professor off to one side. Darrell, when he attempted to follow, was herded back and surrounded by a number of the silent, menacing beings. Binet, after shaking his head warningly to his friend, squatted down with legs crossed under him, faced the thing that sprawled on the ground nearby, and began an amazing "conversation."

"Primarily," Binet scowled in concentrated endeavor to project his thoughts, "I'd like to know precisely the principles and construction of your space-traveling car."

"Simplicity itself. The metal ball you see there, which generates both our gas and electricity, if we need it in any quantities, acts as the center of the car. Surrounding it we build up a body of gas, in which my race lives, that is magnetically held to the central body. Outside, as a protective shell, we pass the electronic stream. To propel the whole mass away from the gravitational field of our comet, and to retard progress when entering the range of gravitation of another world, we use again the electronic stream. This is produced—" Here followed a series of complex and abstruse mathematical equations and formulae that puzzled Binet and might have taxed Einstein himself. Eventually the transmission tailed off into a series of what seemed to Binet to be a meaningless jumble of light flashes and buzzings.**

The little Frenchman politely broadcasted some vague generalities of understanding while he framed his next question.

"What is the purpose of this gas? Is it necessary for you to breathe it in order to live?"

"That, and more, too. From this gas my people gather all nourishment. It contains all the elements essential for our life. With our all-sufficient vapor we exist; without it we die."

"I see. Now that you are here, what do you intend to do? You have destroyed some of the Earth people,

*Here followed what was apparently the name of the comet, utterly untranslatable.

**It is a curious fact that not only here, but at other times during the exchange of ideas, there were occasions when Prof. Binet received impressions that were completely untranslatable. No attempt has been made in this transcript to indicate these lapses. Indeed, Binet himself is unable to recall just what was recorded in his mind in these instances. Whether this phenomenon was due to temporary interruption of the thought-wave current, or whether the comet people possessed knowledge that is untranslatable in our idiom, cannot be determined. It remains unexplained to this day.

and vengeance may be wreaked upon you."

"We shall take possession of this world and prepare it to be habitable for us, that we may live and thrive here. By generating enough gas we can completely cover this planet. In time, since the vapor is slightly heavier than your atmosphere, it will settle and thrust your air outward as a shell resting upon the heavier gas. As for your people, I do not understand your attitude. We have come here to live. If your race dies that we may exist, that is as it should be. The strongest shall survive."

CHAPTER IV

Binet Acts

AND Binet, as he understood that cool, simple message, felt the same dread chill of menace he had felt before. "But," he suggested, "would you kill off women and children to suit a selfish desire? Have you no pity for the babe in arms?" The emotional side of the Frenchman was coming to the fore.

There was no answer. Plainly the big slug-like creature failed to grasp Binet's meaning, which was to be expected in a sexless, emotionless race. The scientist tried another method of approach.

"What reason have you for destroying a people who have never offended you in any way?"

Binet could almost feel the mental shrugging of the shoulders.

"We hold no animosity toward you. The strong live; the weak die. If your people are able to live with us, as you seem to be, well and good. If not, that is a misfortune that concerns us not at all. Beyond that nothing interests us for the moment."

The utter lack of compassion or emotion of any kind appalled the scientist. A picture arose in his mind—a shivering remnant of the human race, clothed perpetually in gas-masks and protective raiment, flesh slowly withering to a glabrous white as they vainly sought for sunlight through the all-encompassing mist. Binet shuddered.

He spoke again mentally. "We shall try to live with you, of course, but it is necessary for we Earth creatures to have food regularly. Have I your permission to return to the airship and retrieve a bit of lunch the other man and I brought with us?"

"You have no intent to deceive?"

"None whatsoever," lied Binet.

The little Frenchman groped his way slowly back to the plane. When he returned to where Darrell was moodily staring at the ground, he carried the lunch package, his small, camera-like black box, and a large rubber mat from the floor of the cabin. He sat down opposite the reporter and told him briefly what he had learned while they ate. He concluded:

"Personally, I would be willing enough to have these creatures live in a secluded sector of this world, because we could learn much from them. But they are not content to do that. They need the whole Earth. No, a race of beings so utterly different from our own emotionally-keyed people could never adjust themselves satisfactorily. One of us must go. As he himself said, 'the weak die, and the strong survive.'" Binet's expression was suddenly harsh and flinty as he stared into the murk around him.

Darrell smiled without mirth. "It appears, Paul," he said with slight irony, "that we are not cast in the role of the strong at the moment."

"You think not? Tut! Jacques, you underestimate your aged and decrepit instructor." The Frenchman finished a sandwich, being careful not to inhale as he cautiously lifted the lower portion of his mask and took a bite. Darrell did likewise, and the two chewed in silence for some moments.

"What," asked the reporter, "do you intend to do?"

"Frankly, I should like very much to spend a few days here in study. My informant, however, indicated that the sooner the world is covered with the comet gas, the better it will suit him. So we haven't much time to delay. I intend to get away from the island and then destroy the gas, the comet creatures, and every other living thing on the place!"

"Indeed!" Darrell waxed very sarcastic. "I trust I shall be present to witness this miracle."

"Ha, Jacques! You mock me. But wait and see. You shall be present, never fear, for I have need of those strong arms of yours to row the boat that is to take us from this place."

"Boat!"

"Yes, boat." Binet spoke smoothly. "I took the opportunity to explore up the beach a way while I went for lunch. There is a small rowboat, evidently, to judge by the odor, a goat-herder's. In it we shall depart."

"And no doubt you have fixed it with your friend, the slug, that we walk away in peace."

The scientist shook his head. "No. That is not yet arranged. It will be difficult. You will have noticed that though these creatures have no eyes, they nevertheless sense our slightest movement with their highly sensitive bodies. We shall have some difficulty in reaching the boat, I fear."

"Good," said Darrell. He drew a heavy automatic pistol from his pocket and unloaded it. In the dim light he opened a pocketknife and carefully began to split the leaden noses of the cartridges. Binet watched the operation distastefully. He said:

"Do you consider that quite ethical?"

"No more than the destruction of the civilized world."

The scientist was silent. Darrell finished his task, reloaded the gun, and expressed himself ready to leave. Binet slowly rose to his feet, peering into the mist for the strange creatures that he knew were lurking there.

"Let's walk slowly down to the beach."

The two men stumbled their way toward the water. Just as they came in sight of the sand, Binet, who had been looking back every few seconds, grabbed Darrell's arm.

"HERE they come!" Looming grotesquely out of the thick gray gas behind them came a half-dozen of the pursuers. Instantly Darrell whirled around. His hand snaked to his rear pocket and flipped back again wreathed in a burst of flame and smoke. Four times he fired in rapid succession, and the battering concussions smashed heavily on the eardrums in the thick air. As the four dum-dum bullets ripped into the yielding flesh of the creature, great gobs were torn out of its body. It fell to the ground, a shattered thing.

In spite of the desperate urgence of their flight, by

(Concluded on page 1075)

A Conquest of Two Worlds

By EDMOND HAMILTON

(Illustration by Paul)

The Jovians were being led by a renegade earthman, who had been training them in the use of atom-blasts and bombs.

A CONQUEST OF TWO WORLDS

By the author of "The Man Who Evolved," "The Reign of the Robots," etc., etc.

JIMMY CRANE, Mart Halkett and Hall Burnham were students together in a New York technical school in the spring of 1962 when Gillen's flight changed the world. Crane, Halkett and Burnham had been an inseparable trio since boyhood. They had fought youthful foes together, had wrestled together with their lessons, and now read together, as an amazed world was reading, of Ross Gillen's stupendous exploit.

Gillen, the stubby, shy and spectacled Arizona scientist, burst the thing on the world like a bombshell. For sixteen years he had worked on the problem of atomic power. When he finally solved that problem and found himself able to extract almost unlimited power from small amounts of matter, by breaking down its atoms with a simple projector of electrical forces of terrific voltage, Gillen called in a helper, Anson Drake. With Drake he constructed an atom-blast mechanism that would shoot forth as a rocket stream, exploded atoms of immeasurable force, a tremendous means of propulsion.

EDMOND HAMILTON

For Gillen meant to conquer space. Through that momentous winter of 1961, when Crane, Halkett and Burnham had not a thought beyond their school problems and school sports, Gillen and Drake were constructing a rocket that would use the atom-blast mechanism for propulsion and could carry one man and the necessary supplies of air, food and water. There was installed in the ship a radio transmitter they had devised, which made use of a carrier-beam to send radio impulses through the earth's Heaviside Layer from outer space. When all was ready Ross Gillen got calmly into the rocket and roared out into space to eternal glory.

JUST as the white man had nothing to be proud of in his early conquest of the Americas, so the human race will hardly look back with pride if it manages to conquer the solar planets. The dominating force of greed is not expected to suddenly vanish when enterprising men roam the interplanetary spaces.

It is unfortunate that after brave and unselfish men have opened up new lands, the great profits that they bring go to financiers and business men who risk neither their lives nor their money.

Suppose, as Mr. Hamilton shows so dramatically, the selfish exploitation of other planets was being accomplished for greedy exploiters, and to conquer those worlds meant the decimation of its harmless population, would you aid in that process? Read this absorbing story, and then write us your opinions of the conduct of Mart Halkett. We will print the best letters.

Crane, Halkett and Burnham read as tensely as everyone else on earth the reports that came back from Gillen's radio. He swung sunward first and reported Venus a landless water-covered ball, and Mercury a mass of molten rock. Landing was impossible on either. Then Gillen headed outward in a broad curve for Mars and on a memorable day reported to earth a landing on that planet.

Mars had thin but breathable air, Gillen reported. It was an arid world of red deserts with oases of gray vegetation wherever there were underground springs or water-courses. There were Martians of some intelligence moving in nomadic groups from oasis to oasis. They were man-like beings with stilt-like legs and arms, with huge bulging chests and bulbous heads covered with light fur. Gillen said the Martian groups or tribes fought some among themselves with spears and like weapons, but that they welcomed him as a friend. He reported signs of large mineral and chemical deposits before he left Mars.

Gillen's radio signals became ever weaker as his rocket moved through space toward Jupiter. He managed a safe landing on that giant planet and found it without oceans, warm and steamy and clad from pole to pole with forests of great fern growths. A strange fauna inhabited these forests and the highest forms of life. The Jovians, as Gillen called them, were erect-walking creatures with big, soft hairless bodies and with thick arms and legs ending in flippers instead of hands or feet. Their heads were small and round, with large dark eyes. They lived peacefully in large communities in the fern forests, on fruits and roots. They had few weapons and were of child-like friendliness. Gillen stayed several days with them before leaving Jupiter.

Gillen said only that Jupiter's greater gravitation and heavy wet atmosphere had made him ill and that he was heading back to earth. Saturn, Uranus, Neptune and Pluto were of course, hopelessly cold and uninhabitable.

Crane, Halkett and Burnham were part of a world that was mad with excitement as Gillen swung back through space toward earth. And when at last Gillen's rocket roared in through earth's atmosphere and landed, it smashed, and they found Gillen inside it crumpled and dead, but with a smile on his lips.

To Halkett, Crane and Burnham, Gillen was the supreme hero as he was to all earth. Overnight, Gillen's flight, the fact of interplanetary travel, changed everything. The new planets open to earthmen brought new and tremendous problems. Even as Anson Drake,

Gillen's helper, was supervising construction of ten rockets for a second expedition, the world's governments were meeting and deciding that a terrific war between nations for the rich territories of Mars and Jupiter could only be avoided by formation of one government for the other planets. The Interplanetary Council thus came into being and one of its first acts was to make Drake's expedition its official exploring party.

Drake's expedition became the goal of all the adventure-minded young men of earth. Jimmy Crane, Mart Halkett and Hall Burnham were among these, but they had what most of the adventurous had not, technical education and skill. The harassed Drake took the three on; and when Drake's ten rockets sailed out with the commission of the Interplanetary Council to explore Mars' mineral and other resources, to establish bases for future exploration on Mars and if possible on Jupiter, Crane, Halkett and Burnham were together in Rocket 8.

DRAKE'S expedition proved a classic in disaster. Two of his ten rockets perished in mid-space in a meteor swarm. Many of the men in the other rockets were struck down by the malign combination of the weightlessness, the unsoftened ultra-violet rays, and the terrific glare and gloom of mid-space. This space-sickness had put about a half of Drake's men out of usefulness, Halkett and Burnham among them, when his eight rockets swung in to land near the Martian equator.

One of Drake's rockets smashed completely in landing, and three others suffered minor damages. They had landed near one of the oases of vegetation, and Drake directed the establishment of a camp. The thin cold Martian air helped bring his space-sick men back to normal, but others were being smitten at the same time by what came to be known later as Martian fever. This seized on Hall Burnham among others, though Halkett and Crane never had it. The fever came as the result of the entirely strange conditions in which the earthmen found themselves.

Drake's men were in a world in which nothing could be measured by terrestrial standards. The reduced gravitation made their slightest movements give grotesquely disproportionate results. But the thin air made even the slightest effort tire them quickly. The sun's heat was enough by day to give moderate warmth, but the nights in Drake's camp were freezing. Halkett, Crane and Burnham marveled at the splendor of those bitter nights, the stars superb in frosty brilliance, the two Martian moons casting ever-changing shadows.

Then, too, there were the Martians. The first contact of Drake's party with them was amicable enough. The big, furry man-like beings, strange looking to the earthmen with their huge expanded chests and stilt-like limbs, emerged from the vegetation oases to greet Drake's men as friends. News of Gillen's visit had traveled over part of Mars, at least, for these Martians had heard of it.

Drake welcomed the Martians and ordered his men to fraternize with them, for he hoped to learn much from them concerning the planet's resources. He was beginning to see that his expedition was far too small for even the sketchiest exploration of the planet. So Martians and earthmen mixed and mingled in the little camp at the oasis' edge. Some of the men learned the rudiments of the Martians' speech—Mart Halkett was one of these—and got from them a little information concerning location of mineral deposits. Although most of it was undependable, still Drake felt he was learning something.

But the whole state of affairs changed when one of Drake's men foolishly told some Martians that Drake's expedition was but the forerunner of many others from earth, and that the Interplanetary Council would direct the destines of all the planets. It must have been a shock to the Martians, primitive as they were, to find that they were considered subjects of this new government. They withdrew at once from the earthmen's camp. Drake radioed to earth that they were acting queerly and that he feared an attack.

Yet when the attack came three days later the earthmen brought it on themselves. When one of Drake's guards wantonly slew a Martian, the natives rushed the camp. Drake had hastily made ready atom-blast mechanisms for defense and the attacking Martians were almost annihilated by the invisible but terrific fire of disintegrated atoms. Crouching behind their rude dirtworks, the earthmen, even those staggering from Martian fever, turned the roaring blasts this way and that to mow down the onrushing mobs of furry, big-chested stilt-limbed Martians. Halkett, Crane and Burnham did their part in that one-sided fight.

The Martians had learned their lesson and attacked no more but hemmed in the camp and systematically trailed and killed anyone venturing from it. More of Drake's men were going down with Martian fever and several died. Exploration was out of the question and Drake's position became insupportable. He reported as much and the Interplanetary Council ordered his return to earth.

Drake foolishly sent four of his rockets, with Halkett and his friends in one, back to earth in advance. The other three and their crews, including himself, delayed to repair the damage done in landing. The Martians rushed them in force that night, and Drake and all his men perished in what must have been a terrific battle.

Halkett, Crane and Burnham got back to earth with the four advance rockets some time after Drake's last broken-off radio-messages had told his fate. They found earth, which welcomed them as heroes, wrathful at the slaying of their commander and comrades by the Martians. The information Drake had sent back regarding Mars' rich chemical and metallic deposits added greed to the earth-people's anger.

Announcement was made immediately by the Interplanetary Council that another force would be sent back to Mars, one better equipped to face Martian conditions and powerful enough to resist any Martian attack. It was evident that the Martians would resist all explorations and must be subdued before a systematic survey of the planet could be made. Once that was done, Mars would become a base for the exploration of Jupiter.

Rockets to the number of a hundred were under construction, embodying all the lessons Drake's disastrous expedition had learned. Instruments, to give warning of meteor swarms by means of magnetic fields projected ahead, were devised. Walls and window ports were constructed to soften the terrific ultra-violet vibrations of free space. Special recoil harnesses were produced to minimize the terrible shocks of starting and landing. These would reduce space-sickness, and Martian fever was to be combatted by special oxygenation treatment to be given periodically to all engaged in this new venture.

Weapons were not forgotten—the atom-blast weapons were improved in power and range, and new atomic bombs that burst with unprecedented violence were being turned out. And while crews were being enlisted and trained for this rocket fleet, the Army of the Interplanetary Council was organized. Most of the survivors of Drake's disastrous expedition joined one department or another of the new force. Crane, Halkett and Burnham had joined at once, and because their Martian experience made them valuable they were commissioned lieutenants in the new army.

HALKETT commented on that. "I don't know why we should be going back there to kill those poor furry devils," he told Crane and Burnham. "After all, they're fighting for their world."

"We wouldn't hurt them if they'd be reasonable and not attack us, would we?" Crane demanded. "We're only trying to make of Mars something beside a great useless desert."

"But the Martians seem to be satisfied with it as a desert," Halkett persisted. "What right have we, really, to change it or exploit its resources against their wishes?"

"Halk, if you talk like that people'll think you're pro-Martian," said Crane worriedly. "Don't you know that the Martians will never use those chemical and metal deposits until the end of time, and that earth needs them badly?"

"Not to speak of the fact that we'll give the Martians a better government than they ever had before," Burnham said. "They've always been fighting among themselves and the Council will stop that."

"I suppose that's so," Halkett admitted. "But just the same, I'm not keen on slaughtering any more of them with the atom-blasts as we did with Drake."

"There'll be nothing like that," Crane told him. "The Martians will see we're too strong and won't start anything."

Crane proved a poor prophet. For when the expedition, commanded by that Richard Weathering who had been Drake's second in command, reached Mars in its hundred rockets, trouble started. There was never a chance to try peaceful methods—fighting with the Martians began almost immediately.

It was evident that since Drake's expedition the Martians had anticipated further parties and had made some preparation. They had combined groups into several large forces and had devised some crude chemical weapons not unlike the ancient Greek fire With these they rushed Weathering's rockets on the equatorial plateau where they had landed. But Weathering had already brought order out of the confusion of landing and was ready for them.

His first act on landing was to have his men bring the rockets together and throw up dirtworks around them. Both of these tasks were enormously simplified by the lesser gravitation of the planet. He had then set up batteries of atom-blasts at strategic locations behind his works, Jimmy Crane commanding one of these and Halkett another. These opened on the Martians as soon as they came into range. The furry masses, unable to use their rather ineffective chemical weapons, were forced to fall back with some thousands dead. They immediately tried to hem in the earthmen as they had done with the Drake expedition.

Weathering did not permit this. He knew that the Martians' source of existence was the gray vegetation of the oases. This vegetation was mostly a sage shrub which bore pod-like fruits about the time the polar snowcaps reappeared. Weathering sent parties forth, Lieutenant Jimmy Crane heading one, to devastate the oases for a hundred miles around the earth-post.

They carried out orders though the Martians in those cases made fierce resistance, and there were mad combats of brown-clad earthmen and furry Martians in brilliant sunlight of day or black, freezing night. But Crane's and the other parties went stubbornly ahead, destroying the vegetation with atom-blasts. And in the end, with the vegetation that yielded their food-supply destroyed, the Martians in that hundred-mile circle had to retire across the red desert to other oases.

Weathering then split his forces into three divisions using his rockets to transport two of these divisions to points equidistant around Mars' equator. At each point a post like Weathering's own was established, with dirtworks in a square around it and atom-blast batteries mounted. Jimmy Crane, who had shown aptitude thus far in Martian campaigning, was made commander of one of these posts and a Lieutenant Lanson commander of the other. Halkett and Burnham stayed in Weathering's own post.

Eighty of the ninety-seven rockets that had landed safely, Weathering now sent back to earth for more men and supplies. Word came from earth that fifty new rockets had been constructed and were on their way with men and materials. Weathering distributed them equally among his three posts when they came and sent them also back to earth for more. Crane and Lanson, under his orders, had devastated the oases around their posts to drive the Martians back from them.

CHAPTER II
The Conquest of Mars

WEATHERING'S men were becoming acclimated to Martian conditions. The oxygenation treatments eliminated most of the Martian fever, and as the earthmen's muscles attuned themselves gradually to the new gravitation their movements became more sure. It is worthy of note that some of those first venturers who went back from Mars to earth after a year on the red planet were stricken by a sort of earth-sickness due to earth's different conditions.

As reinforcements came in, Weathering continued to distribute them among the three posts of Crane and Lanson and himself. He wanted to establish the three forts firmly before an overwhelming Martian attack swept them out of existence. There were signs that that could be expected from the Martians.

The Martian attacks were growing fiercer. The Martians could see plainly enough the course Weathering was following, and that each week brought more rockets from earth with more men, more supplies and more atom-blasts and atomic bombs. They determined upon a concerted attack to wipe out the earthmen's three forts before they became too strong.

The attack broke against the three forts, so widely separated, at the same time. It did not catch Weathering and Crane and Lanson by surprise—their atom-blasts were ready. But even so, the Martian attack was almost irresistible in sheer weight. From far across the

reddish desert surged the furry Martian masses toward the three little forts, coming on despite the atom-blasts that took toll of them by tens of thousands.

Weathering's post and that of Crane withstood the attack by only the utmost endeavor. Halkett had charge of one of the atom-blast batteries at Weathering's fort, on the side that the Martians attacked most determinedly. It was Halkett's battery that wrought the deadliest destruction amid the furry hordes.

The third post, that of Lanson, fell. The Martians got inside with their chemical weapons despite the atom-blasts and bombs of the earthmen. Lanson and his garrison were massacred to the last man by the Martians. Only one of the three rockets stationed at Lanson's post escaped, a little before the fort fell, and got to Weathering with the news.

Weathering acted at once, despite his own precarious situation. He assembled sixteen rockets from his fort and Crane's, loaded them with men and weapons, and sent them under the command of Mart Halkett to reëstablish the third fort. They did so, taking the Martians there by surprise, and managed to hold the place in the face of the Martian attacks that followed.

There followed a lull in the fighting, with Weathering, Crane and Halkett holding grimly on in the three forts. The Martians had lost tremendous numbers without dislodging the earthmen, and were in no mood for further attacks in force. Yet they did not retire but continued to encircle the forts.

But steadily the earthmen's strength grew as more rockets came in. Earth was aflame over the situation, cheering Weathering as the upholder of terrestrial honor. The gallant fight of earth's lonely outposts there amid the Martian hordes had appealed to the popular imagination and there were insistent demands that the Interplanetary Council use all its powers to reinforce them.

It meant to do so. It sent Weathering a message stating as much, advancing him from colonel to general, promoting Jimmy Crane to colonel, and Halkett and Burnham and a number of others to captaincies. The enlistment bureaus of the Council on earth could not handle the flood of recruits.

Rockets were now pouring from the factories in a steadily increasing stream. Atomic weapons were also being produced in quantity and every few days saw rockets laden with supplies and men taking off for Mars. Many perished still in the dangers of the void but most arrived safely. Weathering continued to distribute the men and supplies they brought among his three posts.

When the three forts were strong enough to be impregnable to any Martian attack, Weathering began the establishment of new posts. He proceeded methodically to dot Mars with small but strong forts, each covering a certain portion of the planet's surface. Hall Burnham was made commander of one of the first of these, Crane and Halkett retaining command of their posts.

Within a year Weathering had a network of fifty forts stretched over Mars' surface from the north polar snow-cap to the southern one. He had in them strong garrisons of bronzed earthmen thoroughly acclimated to the Martian gravitation and atmosphere, and well-seasoned in fighting with the stilt-limbed Martians. By then Halkett and Burnham were commanding two of the fifty forts, while Jimmy Crane was now Weathering's second in command. The two worked together distributing, according to their plan, among the fifty posts, the streams of men and materials arriving from earth.

With the next melting of the polar snow-caps, Weathering was ready to begin the final subjugation of Mars. From a circle of six of his forts he sent out strong forces to attack and drive together the Martians in that circular territory. This was the plan evolved by Weathering and Crane, to concentrate forces upon one section of the planet at a time, using the forts around that section as bases, mopping up the Martians in that section thoroughly and then proceeding to another.

CRANE had charge of the first operation and it worked perfectly. The Interplanetary Council had directed Weathering to offer the Martians peace if they promised to obey the Government's authority. But Crane's men had no chance even to make the offer, so utterly fierce was the Martian resistance.

The Martians had never expected what happened. The furry, stilt-limbed men had ceased their attacks on the earthmen's forts some time before, save for occasional raids, and had retired to take up existence in the vegetation oases remoter from the forts. There they had lived as they had for ages, moving in nomadic fashion through the oases gathering the fruits upon which they subsisted, digging as ages of experience had made them skilful in doing for the underground springs. Now the earthmen were attacking them! The Martians rose madly to the fight.

But Crane's forces were strongly armed and with atom-blasts and atom-bombs against their crude weapons the Martians had no chance. Those in that section were mostly killed in the fighting and the few remaining were herded into prison camps. Crane went on under Weathering's order to another section and repeated the maneuver. Halkett's fort was one of the posts around that section, but Halkett and Crane had small opportunity of seeing each other in the midst of the grim business of rounding up the Martians. With that section subdued like the first, the forces of Crane concentrated on another.

Within another year Weathering could send word back to the Council that the plan had succeeded and that except for a few remote wastes near the snow-caps, Mars was entirely subjugated. In that year approximately three-fourths of the Martian race had perished, for in almost every case their forces had resisted to the last. Those who remained could constitute no danger to the earthmen's system of forts. The Council flashed Weathering congratulations and gave Crane command of the expedition then fitting out at earth for the exploration of Jupiter.

Crane went back to earth to take charge of it, first taking warm leave of Mart Halkett and Hall Burnham at the posts they commanded. Crane spent a half year on earth preparing his expedition of two hundred rockets to meet conditions on Jupiter. For Jupiter presented a greater problem to earth explorers than had Mars, and biologists and chemists had been working to overcome the obstacles.

The greatest difficulty, Crane saw, was Jupiter's gravitation, almost twice that of earth despite the swift-spinning planet's counteracting centrifugal force. Gillen's visit to Jupiter on his epochal flight had been terminated by sickness brought on by that greater gravitation and

the heavy damp atmosphere. Crane's men must be strengthened to withstand these influences.

Earth's scientists solved the problem to some extent by devising rigid metallic clothing not unlike armor which would support the interior human structure against Jupiter's pull. Crane's men were also administered compounds devised by the biochemists for the rapid building of bone to strengthen the skeleton structure, while respirators which absorbed a percentage of the water vapor in air would solve for Crane's men the problem of the heavy wet atmosphere.

So equipped, Crane's expedition sailed in its two hundred rockets for Jupiter, choosing a time when the asteroid zone between earth and Jupiter was comparatively clear. Even so, sixteen of the two hundred rockets never reached their destination. The others landed safely in the fern forests of the southern half of Jupiter, and Crane began there establishment of the first earth-post.

He found himself with troubles enough. For though the metal armor and other protections safeguarded the earthmen fairly effectively from the greater gravitation, they found it still difficult to make the simplest motions. It took weeks for Crane's men, against the drag of the Jovian gravity, to clear the fern forest around them and turn up dirtworks of the oozy black Jovian soil.

Sickness was rife among them, for the respirators did not work as well as the safeguards against gravitation. The heavy wet air worked havoc with the earthmen's lungs and the so-called Jovian croup became soon as well-known and much more feared that Martian fever. Men toiling in the thin sunlight were stricken by it. Crane's forces were decimated by it. The fern forests, too, held weird forms of life that proved a problem, some of them disk-shaped things of flesh that enveloped anything living in their bodies and ingested it directly. There were also strange huge worm-like things existing in the oozy soil, and others stranger still. Crane's men had to work with atom-blasts constantly ready to repel these strange predatory forms of life.

OUT of the fern forests, too, came to watch the earthmen hosts of the big, soft-bodied creatures Gillen had called the Jovians. These had bodies eight feet high and six feet around, like big cylinders of hairless brown flesh supported on thick flipper-like limbs, with similar flipper-like arms. Their small round heads had dark mild eyes and mouths from which came their deep bass speech. Crane found they were perhaps as intelligent as the Martians but were rather more peaceful, their only weapons spears with which they fought off the things in the fern forests that attacked them.

They were quite friendly toward the earthmen and watched their operations with child-like interest. Crane intended to avoid Drake's mistake and not clash with the Jovians in any way while his men toiled to establish first one post and then others over southern Jupiter. He reported to the Council that he would only operate in South Jupiter for the time being. And while earth followed Crane's work on South Jupiter with intense interest, a host of changes were occurring on Mars.

Mart Halkett, still commanding his equatorial Martian post, saw a new kind of migration now going on from earth to Mars. Hitherto the rockets had carried hardly anything but the reinforcements of the Council and their supplies. But now Halkett saw crowds of civilians pouring into the newly subjugated planet. They were magnates, speculators, engineers, mechanics, for the Council was now granting concessions in the great Martian mineral and chemical deposits.

Halkett saw those forts nearest the deposits, including his own, grow rapidly into raw mine towns packed with earthmen of all kinds. Martian fever had been completely conquered by earth's scientists and some of these crude new towns contained thousands of earthmen. There could be seen among them occasional stilt-limbed, huge-chested Martians moving about as though bewildered by the activity about them, but most of the remaining Martians were on certain oases set aside for them as reservations. Refining and extracting plants were set up as mining operations grew, and Halkett saw the rocket fleets that arrived with men and machinery going back to earth laden with metals and chemicals.

Halkett went up to Burnham's post in northern Mars sick at heart. He told Burnham he had secured a transfer to Jupiter to serve there in Jimmy Crane's expanding system of forts.

"I can't stand this any longer, Burn," he said. "I mean what we've done to this world—the Martians, its people, almost wiped out and those left treated the way they are."

Burnham looked keenly at him. "You're taking it too hard, Halkett," he said. "It's been a tough time, I admit, but that's all over now the Martians are conquered."

"Conquered—wiped out, I say again," Halkett said bitterly. "Burnham, I dream about it sometimes—those waves of furry stilt-men coming on and on toward certain death, and my atom-blasts mowing them down like grass."

"They had to be conquered," Burnham argued. "Isn't it worth it? Look at all this planet's resources thrown open to real use now instead of lying unused."

"Thrown open to a lot of speculators and financiers to extract a profit from," Halkett amended. "The Martians are killed off and we do the dirty work of killing them and all for what? So this bunch swarming into Mars now can enrich themselves."

"That's too narrow a view," Burnham told him. "It's inevitable that there'll be certain evils in the course of an expansion like this."

"Why expand, then?" asked Halkett. "Why not stay on our own planet and leave these poor devils of Martians and Jovians keep theirs?"

Burnham shook his head. "Expansion is as inevitable as a full tank overflowing into an empty one. Anyway, Halk, the fighting's over here now so why go on to Jupiter?"

"Because I feel like a murderer haunting the scene of his crime," Halkett told him. "When I see some of these degraded Martians hanging around our towns, begging for food and getting cuffed and kicked out of the way by earthmen, I want to get out of here to I don't care where."

Halkett went on to Jupiter. He found by then Crane had established a dozen posts over the southern half of the vast planet, following Weathering's Martian system. Jovian croup was giving Crane more trouble than anything else and the dreaded disease was often fatal, the death list sometimes appalling while the earth scientists worked frantically to control the disease. They

finally succeeded in evolving a serum which was an effective preventive. Halkett was inoculated with this immediately on reaching Jupiter.

Halkett found that Crane was, despite the difficulties, strengthening his system of posts as reinforcements arrived constantly from earth. He had been successful in avoiding trouble with the Jovians so far—the strange forms of life that came out from the steamy fern forests to attack the earthmen were of more concern than the numberless but peaceful hosts of the Jovians.

Crane commented on the Jovians to Halkett the night after the latter's arrival. The two had been outside the post and Halkett had met the Jovians for the first time, the big, soft-eyed flippermen clustering around him like interested children. Now he and Crane sat in Crane's lamplit office, whose windows looked out across the post to the mighty wall of the surrounding fern forest. Halkett could hear the calls and screams of the forest's various weird tenants, and could see its steamy mists rising into the light of the two moons then in the sky, Callisto and Europa.

"These Jovians aren't a bad bunch, Halk," Colonel Jimmy Crane told his friend. "They seem too mild to give us any real trouble, though God knows how many millions of them there are."

He was enthusiastic about Jupiter's possibilities. "I tell you, this is the planet of the future. Stick a seed in the ground and in a week you've a tree—this planet will be supporting trillions of humans some day when earth and Mars are overcrowded."

"Where will the Jovians be when that day arrives?" Halkett asked him. Crane looked at him.

"Still holding to that viewpoint? Halkett, we have to let some things take care of themselves. Be sure we'll not harm the Jovians if they don't try harming us."

"Well, we may be able to get along with them," Halkett said thoughtfully. "They seem rather more peaceful than the Martians."

CHAPTER III

Jupiter Next!

BUT trouble came soon after Halkett's arrival, with the Jovians. Crane had been engaged in strengthening his dozen posts scattered over the southern half of Jupiter. He had not tried to establish any forts in North Jupiter, realizing the insufficiency of his resources, for even the dozen on the huge planet's southern half were separated by tremendous distances. Rocket communication between them was fairly quick but Crane preferred to strengthen the twelve forts before establishing more.

Then came the trouble. It began as on Mars—a bad-tempered earthman at one of the forts beat a flipper-man for some reason and in a brawl that ensued one earthman and five Jovians were killed. Word must have spread somehow in the fern forests for the Jovians retired from the forts of the earthmen. Jimmy Crane cursed in private but acted, punishing the earthmen concerned and sending Halkett to the Jovian communities to patch up matters.

Halkett had learned the Jovian language and proved a good ambassador for he was sympathetic with the flipper-men. He did his best to fulfil his mission but could not succeed. The flipper-men told Hackett that they had no hard feelings but would prefer to avoid the earthmen lest further trouble develop.

Halkett went back with this word and Crane realized that trouble was ahead. He flashed word back to the Interplanetary Council and it ordered him to hold all his posts and await reinforcements from earth and Mars. Weathering would send on most of the Martian divisions of the Council's army as rapidly as possible.

Soon after the arrival of the first reinforcements the storm broke. The Jovians had come to see, despite Halkett's attempt at reassurance, what Crane's expanding system of posts would mean in time. They sent to Crane asking from him a promise that no more earthmen would come to Jupiter. Crane curtly refused to make such a promise. Even so the flipper-men might have remained inactive had not by some inconceivable brutality an atom-blast been turned upon their envoys as they left the fort. Crane's summary execution of the men responsible for the action could not mend matters.

For the Jovians, aroused at last, rose upon the earthmen. Over all South Jupiter they poured out of the fern forests in incalculable masses upon the forts of the earthmen. They had not even the crude chemical weapons the Martians had used, their only arms spears and great maces, but there were tens of thousands of them to every earthman. Crane set himself grimly to hold his dozen posts against the floods of the flipper-men.

He had given Halkett command of one of the posts on the other side of South Jupiter. Halkett gripped himself and used all his experience to hold the post. He fought as all of Crane's twelve posts were fighting, to hold back the endless Jovian masses. The atom-blasts scythed them down, the atomic bombs burst in terrific destruction among them, but the Jovians came on to the attack with a sort of mild but resolute determination.

Crane now was fighting to maintain earth's hold upon South Jupiter until reinforcements could come. He sent brief reports back to the Earth. The Council appreciated the situation, commandeered all rockets for the sole purpose of transporting their legions and weapons to South Jupiter. Only skeleton garrisons were left in the Martian posts. Yet it seemed that by sheer numbers the Jovians would overwhelm the earthmen.

One of Crane's twelve posts they did indeed take. A strange sidelight on the nature of the Jovians is that after losing hundreds of thousands in the long attack on the fort, they contented themselves with razing it to the ground when they had captured it and holding the earthmen in it prisoners. There was no massacre as had been the case on Mars. Crane, however, managed with the coming of further reinforcements to reëstablish the fort.

The tide was turning in the earthmen's favor. Every day brought in new rockets of men and supplies to Crane and the flipper-men could not face the atom-blasts and bombs forever, even with their incalculable numbers. Their attacks died away as the twelve forts grew stronger and they retired into the great forests. Any parties venturing from the forts they fell upon. It was the same situation as on Mars three years before, and Crane dealt with it in the same way. Halkett was one of his own aids now, and so too was Hall Burnham who had come on from Mars with the reinforcements.

Crane held his hand until he had strengthened his twelve posts beyond danger of attack, then established at gradual intervals no less than ninety more posts in a

network around South Jupiter. He was going to proceed on Weathering's Martian plan, subjugating the planet section by section, except that Crane was operating only in South Jupiter and leaving the northern half of the great planet quite untouched. Patiently he established and strengthened his hundred-odd posts.

When his network of strong forts around South Jupiter was complete, Crane went ahead to conquer it section by section as he had planned. It was a herculean undertaking for the earthmen. Their greatest obstacle was not the Jovians themselves, who could offer no effective resistance to the atom-blasts and bombs of Crane's men, but the terrible Jovian gravity that made each movement an effort, that required them to wear the metal body-support armor and made their movements still more difficult.

Yet in section after section the divisions of Crane's mobile forces, Halkett and Burnham among their commanders, crashed through the steamy fern forests with atom-blasts and drove the Jovians slowly but resistlessly until they were hemmed in and brought to action. There were fights of terrific fury in the green twilight of the huge damp forests, for few of the Jovians surrendered, the great majority fighting with immovable resolution until the atom-blasts and bombs slew them.

Crane's grip upon South Jupiter tightened with each section subjugated by the superhuman endeavors of his men. He flashed word to the Interplanetary Council that his plan was following schedule. He was conquering sections in such a way as to cut off from each other by subjugated territories, the larger Jovian masses. Then in the midst of this tremendous task occurred an astonishing incident, one that made earth first incredulous and then wrathful. Halkett became a traitor.

THE first reports of Halkett's treachery that got back to earth were confused and contradictory. Later ones stated that Captain Halkett was under guard in one of the South Jupiter posts. He had been the cause of the hard-fought subjugation campaign in one of the sections failing, and of a large Jovian force escaping. That was all that was known certainly at first.

Then came details. Three forces under Halkett and Burnham and an officer named James had been operating against the Jovians in that section. Halkett commanded a heavy atom-blast battery and Burnham and James had been driving the Jovian forces toward it. For a score of the short Jovian days and nights the men of Burnham and James had pushed the Jovians in the desired direction, toiling against the relentless gravitation's drag, through the endless fern forests they had to cut through and against the weird beasts they dislodged from those forests. They had without question done their part against the Jovians.

But Halkett had not. He had deliberately ordered his men not to fire on the Jovians and the flipper-men had escaped past him. Earth could hardly credit the news. There came from soldiers and civilians alike a swift demand for Halkett's punishment. The Council ordered Crane to send Halkett home for court-martial

Crane told Halkett that in the guardhouse on South Jupiter, and told him much more for he was half-crazed with the thing.

"Halk, how could you have done it?" he kept saying. "I've got to send you back now and God knows what a court-martial will do to you with feeling against you so strong on earth."

"Don't worry about it, Crane," said Halkett steadily. "I did as I wanted and I'm willing to take my medicine."

"But why did you do it?" Crane demanded for the hundredth time. "Halkett, if you'll only plead that you didn't know the Jovians were coming through—that it was some kind of blunder—"

Hall Burnham seconded him. "A blunder on your part would lose you your commission but you'd escape a sentence," he told Halkett. "Surely it was partly that, at least."

Halkett shook his head. "It wasn't. I can't explain just what it was, why I did it—but if you'd have seen those Jovians coming through the forest there, weary, terrorized, hunted onward for days yet somehow unresentful—I *couldn't* turn the atom-blasts loose on them!"

Crane made a gesture. "Halkett, I understand what you felt but even so you shouldn't have done it. I'd go back with you to earth for the trial but I can't leave here now."

"It's all right, Jimmy," Halkett told him. "I'm willing to take what comes."

Halkett departed for earth under guard in one of the next detachment of rockets, while Crane and Burnham and the rest went on with the subjugation of South Jupiter. During the voyage the rocket's officers were careful to show Halkett consideration but no man of them spoke a word to him except when necessary. Feeling in the army against its first traitor was intense.

When Halkett reached earth after that strange voyage from Jupiter, the heads of the Council ordered an immediate court-martial. It took place in the great Army building. Halkett's trial occupied four days and during those days the building was surrounded by crowds waiting to hear his fate.

Popular indignation at Halkett ran high, and many cries for his summary execution were being voiced. People contrasted the gallant struggles of Crane and the rest to hold South Jupiter for humanity with this treachery on the part of a trusted officer. Halkett might have been lynched if he had been less well guarded.

INSIDE the great building Halkett stood up and heard his conduct judged. The officers who heard the case gave him a fair trial. His counsel argued ably concerning Halkett's previous gallant record, the possibility of temporary aberrations and the like. Halkett might have escaped but for his own testimony a little later.

"I was quite in command of all my faculties when I ordered the atom-batteries not to fire," he said quietly.

"Did you realize, Captain Halkett," asked the presiding officer crisply, "that in so doing you were betraying your sworn oath?"

Halkett said that he had realized. "Then what reason can you give for your deliberate breach of trust?"

Halkett hesitated. "I can't give any reason that you'd understand," he said.

Then he burst out with sudden white passion—"Why shouldn't I have done it? After all, Jupiter belonged to the Jovians, didn't it? What were we there but invaders, interlopers? How could I order those hunted flipper-men destroyed when all they were trying to do was to keep their own world?"

His counsel made frantic signals to him but Halkett

was beyond restraint. "What right have we Earth races on Mars or Jupiter either? What right had we to wipe out almost all the Martians as we did, and to repeat it now on Jupiter? Because their planet has resources, the Jovians have to be killed!"

That outburst removed any chance of Halkett's acquittal. The presiding officer read gravely the sentence of ten years in military prison.

"It is only consideration of your former record on Mars and South Jupiter and the fact that you were one of Drake's historic party," he stated, "that keeps this court from giving you a life-sentence or even the extreme penalty."

Halkett took the verdict without any show of emotion and was led back to his cell. Burnham, who had come in from Jupiter in time for the trial's end, went to see him before he was taken to the military prison. Halkett shook hands with him in silence—the two had nothing to say.

With Halkett in prison the world's wrath was appeased. His name was stricken off all the records of the Council's Army. Burnham went back to Jupiter. Halkett spent his days in the shops of the military prison, helping manufacture atom-blasts and bombs and other army supplies. He stood imprisonment quietly.

Crane had moved heaven and earth to get Halkett acquitted but had found his influence useless. Burnham came back and told him how Halkett had taken the verdict. For a long time these two sat silent, perhaps thinking of three thrilled youngsters in technical school who had followed Gillen's flight and rushed to join Drake.

Crane went grimly on with the business of subduing South Jupiter. In the excited activity of that campaign the world forgot Halkett quickly. Crane's plan was working with the precision of a machine, section after section of the great planet being subjugated. Over all South Jupiter those Jovians not yet attacked were moving up into the planet's northern half as yet unvisited by the earthmen's forces.

In four earth years South Jupiter was under earth control. It was gripped tightly by Crane's system of forts, most of its forests had been destroyed by atom-blasts, and as towns grew slowly around the forts great grain-planting projects were getting under way. There were some reservations of Jovians, but the greater part of the Jovians not slain during the subjugation were in North Jupiter. There the fern forests still stretched untouched from the equator to the northern pole, the same as when Gillen first had seen them. But now Crane was looking north toward them.

Jimmy Crane was now General James Crane, thirty-one years old and with gray showing at his temples from nine years of strenuous campaigning on Mars and Jupiter. He had been back to earth twice from Jupiter, once with Burnham who was now a colonel, and both times had tried to see Halkett but had been prevented by strict regulations. Halkett had for four years now worked quietly on in the prison shops making atom-blasts, bombs and rocket parts.

Crane and the Council laid plans for the subjugation of North Jupiter. It was to be done peacefully if possible—the Jovians were to be offered great fern forest reservations and other inducements. But peacefully or not, the planet had to come under control. Crane, who knew the Jovians, began assembling forces on South Jupiter, even as he sent Burnham into North Jupiter to offer the Jovians the Government's terms.

Burnham failed absolutely, as Crane and almost everyone else had expected, to win the Jovians to peaceful settlement. The flipper-men had no faith at all in the earthmen's promises, and no desire to live on reservations. Crane flashed word of that to the Council, which authorized him to proceed by force. A great preparation began on earth and on South Jupiter.

In the midst of his preparations Crane learned that Halkett had been released, his sentence halved for good behavior. He tried to locate Halkett through agents but no one knew where Halkett had gone on leaving prison. Crane was doing the work of two men in the great preparations for the North Jupiter campaign, and could not for the time institute any search for his former comrade.

CHAPTER IV

The Renegade

ROCKET FLEETS arrived ceaselessly, pouring men and materials into South Jupiter from earth and Mars. The recruiting offices on earth were working night and day. Crane took the men they sent and mixed them with his veterans, drilled them, trained them in Jovian fighting, made disciplined armies of them. He concentrated men and materials at the equatorial posts.

For Crane was going to follow a different plan in North Jupiter. Instead of establishing a network of posts as on Mars and South Jupiter, he was going to encircle Jupiter with a thin band of earth forces and then push that band northward toward the pole. His circle, Crane saw, would grow smaller and stronger the farther north it pushed, and would drive the Jovians in North Jupiter onward until those not slain were hemmed in in the warm north polar region.

It took two years of preparation before Crane deemed his forces sufficient. Neither he nor Burnham had in that time heard anything of Halkett, nor had anyone else. Burnham thought that Halkett must be dead. But both had other things enough to think of when Crane began the long-planned campaign. With his forces encircling the equator of the planet, he ordered an advance. The band around the planet began to crawl north.

Fighting with the flipper-men began in days. The Jovians by that time knew better than to charge atom-blasts or expose themselves to the barrage of atomic bombs. They tried a kind of guerilla fighting which was not ineffective in the dense fern forests. But Crane's forces simply blasted the forests out of the way as they advanced, and the Jovians had either to flee or be slain.

Crane moved his headquarters north behind his band of forces. He directed the band's northward movement by radio, sending reinforcements in rockets to whatever part that was held back by fiercer resistance. Crane chose to advance slowly and avoid undue losses. There was no haste—the Jovians were being pushed ever northward by the contracting circle. Within a half-year earth heard that its forces had advanced half the distance between Jupiter's equator and northern pole.

Then came to earth surprising news of a check to Crane's advance. His band had been flung back with heavy losses by the Jovians at a half-dozen places around the planet! Incredibly, it had been done by Jovians armed with atom-blasts and atomic bombs! They had

prepared a circle of rude trenches and earth-works at strategic locations around the planet and had inflicted terrible damage on Crane's band of men when it advanced to that circle!

Earth was aflame instantly with apprehensive excitement. Until then it had taken Crane's final success as certain—the Council had even granted future concessions to the North Jupiter territories. How had the primitive Jovians come to use the atomic weapons? From Crane, who had hastily halted the advance of his circle, came the answer. The Jovians were being led by a renegade earthman who for the past two years had been training them in the production and use of the atom-blasts and bombs. And this renegade was Mart Halkett!

Halkett had been recognized unmistakably by some of Crane's officers during the attack on the Jovian works, had been seen directing the Jovian defense. Halkett! The man who seven years before had played the traitor and who now had become renegade, leading the flipper-men against his own race! It was evident that on his release from prison Halkett had got to South Jupiter in some rocket and then had made his way into North Jupiter and used his technical skill and prison factory experience to set the Jovians making atom-blasts and atomic bombs and digging defenses for the coming struggle.

Halkett became immediately the supreme malefactor to the earth peoples. On earth and on Mars and on South Jupiter men flamed with rage at his name. A thousand deaths were advocated for Halkett if ever he were captured. Crane and Burnham and the rest of the Council Army's men appeared even greater in heroism against the black background of this renegade's treachery. A fierce desire to crush the Jovians and execute Halkett swept earthmen everywhere.

"You will enter into no treatments whatever with the Jovians' renegade leader," flashed the Council to Crane. "Proceed with the North Jupiter campaign according to your own judgment."

Crane read the message. He and Burnham had been stunned by the news about Halkett and Crane for a time would not believe it. "It can't be Halkett," he had said over and over. "I tell you, he wouldn't fight against the Council—against us."

"It's beyond doubt," Burnham told him. "Halkett was recognized by men who knew him well there with the Jovians. And you know what his views have always been on the Jovians."

"Yes, but to become a renegade against his own race! I tell you, Burn, Halkett could never have done that!"

Yet by the time the Council's message reached him, even Crane was convinced that Halkett was the renegade Jovian leader. He called his officers. "We will begin the advance again tomorrow," he said grimly. "Radio all headquarters to make ready."

The advance started again, this time not calmly as before but in deadly earnest. The band of earth forces crawled forward until it met again the line of Jovian defenses. Crane had flung all his forces forward in that attack against Halkett's line, and the battle was terrific. But this time the earthmen were attacking, and the Jovians fighting from cover.

THE Jovian atom-blasts and bombs, though comparatively few in number and inefficiently handled, yet did terrific execution among the advancing earthmen. Halkett's line held all around the planet though the Earthmen attacked like mad beings. Crane at last gave the order to withdraw. Earth was appalled by the casualty lists that were sent home. But though Crane was checked he was not stopped.

He let Halkett's Jovians alone until enough reinforcements had come in to make up his losses. Then he started the attack again, but this time not in a steady wave but in a series of punches. Great spearheads of men and atom weapons were thrust at Halkett's line in a dozen different places. Crane's plan was to shatter the Jovian defenses by repeated concentrated thrusts until it had to withdraw.

Halkett fought fiercely to hold that line. His communications were poor though it was known he had trained some of the Jovians in radio and was directing their fight all round the planet. He had no rockets and could not parry Crane's smashing thrusts by rushing reinforcements to the points attacked. He foresaw inevitable retreat and had the Jovians prepare other lines of defenses farther north toward the pole. The flipper-men followed him with absolute faith.

Soon Halkett was forced to withdraw the Jovians to the next of these hastily prepared defense lines. Crane made no attempt to pursue the Jovians but spread his forces again into a band and advanced northward, destroying forests and mopping up stray groups of Jovians. When his band reached Halkett's new line Crane did not attack but began again his strategy of punching at the line.

The battle-lines on the Jupiter globes by which earth's people followed the struggle crept steadily northward toward the pole in the following year. Ever Halkett's Jovians were forced to retreat to new defenses and ever after them came Crane and Burnham and the hosts of the Council's army, contracting upon them in a steadily diminishing circle. They would ultimately press the Jovians together near the pole and Halkett fought to prevent that.

It was in some ways a strange situation. The three inseparable friends of boyhood and youth become men and fighting the war of races there on North Jupiter, one of them renegade to an alien race and the other two advancing always with their forces on him. No one could accuse Crane of letting his former friendship affect him, in the face of his grim determination. He pushed Halkett's line unrelentingly northward.

And as Halkett's line, the defenses of the Jovians, reached the warm polar regions, Halkett's own military genius flamed. He commanded the Jovians in a way which, despite the meagerness of their atomic weapons, held Crane's forces to the slowest advance. The once-mild flipper-men fought like demons under his leadership. Crane, of all men, appreciated Halkett's supreme generalship in those grim days on North Jupiter. But he punched grimly on, and Halkett's circular line grew smaller and smaller as the Jovians retreated.

It was the retreat of a race—the weary hosts of the Jovians ever backing northward through the steamy fern forests that had been theirs for untold time, throwing up new dirtworks and digging new trenches always at Halkett's command, using every sort of ambush device Halkett could think of to hold back the earthmen. The fern forests resounded with the roar

of atom-blasts and crash of atom-bombs, strange things flopping this way and that in the green depths to escape the battle, the Jovians all round the planet fighting bitterly now for existence.

And ever after them Crane's men, the metal-armored hosts of earthmen struggling against every obstacle of heat and gravitation and illness. For days they would toil through the giant ferns without meeting resistance and then would come upon the new line Halkett had massed the Jovians upon. And then again the blasts would be roaring in death from Jovians and earthmen as the earthmen attacked. And ever despite their desperate resistance the Jovians were pushed back northward, toward the pole.

Reconnoitering rockets brought word to Crane that Halkett had established a refugee camp near the pole that held several millions of the Jovians and that he was collecting atom-blasts and bombs there and digging works around it. Crane sought to cut this base out of Halkett's circle but Halkett saw the maneuver and occupied the place with most of his remaining forces. To do so he had to abandon his circular line of defense except for some smaller bases. So at last the circle of Halkett's line around North Jupiter was gone, and the Jovians held only those fortified bases.

Earth flamed with gladness as Crane went systematically about the work of reducing these bases. He sent Burnham with a force of earthmen large enough to hold Halkett and his Jovians inside the main base, while he reduced the smaller ones. There was bloody fighting before he took them. Those Jovians, miserably few in number, who survived in them, were sent to temporary prison-camps pending their removal to the reservations established. Then with that done, Crane came with all his forces and joined Burnham in front of the last Jovian base in which sat Halkett and his battered remaining Jovians, fighters and refugees.

Crane surprised Burnham and his officers by stating he would treat with Halkett for surrender, though the Council had ordered otherwise.

HE SENT in a messenger summoning Halkett to surrender and avoid further bloodshed, promising the Jovians would be sent to reservations and pointing out the futility of resistance.

Halkett's reply was calm. "There will be no surrender unless the Jovians are given their rights as natives and owners of this planet. Nothing the Jovians endure now can be worse than what they've already gone through."

Crane read the answer to Burnham, his bronzed lined face set. "Halkett and the Jovians mean it," he said. "They'll resist to the last and we'll have to attack."

Burnham leaned to him. "Crane, tell me," he said, "are you trying to save the Jovians in there or Halkett?"

Crane looked at him, heartsickness on his face. "Burn, it's not Halkett. Better for him if he died in an attack rather than to be taken back to earth and executed. But those Jovians—I'm tired of killing them."

Burnham nodded thoughtfully. "But what are you going to do? Order the attack tomorrow? The men are impatient to start it."

Crane thought, then surprised him. "Burn, you and I are going in to see Halkett and try to get him to take these terms. He won't come out but we can go in safely enough."

"But the Council——" Burnham began. Crane waved him impatiently aside. "I'm conducting this campaign and not the Council. I say we're going in."

He sent a message through the works to Halkett, and Halkett replied that he would be glad to confer with General Crane and Colonel Burnham regarding terms, but anticipated no change of mind. Crane ordered all hostilities suspended and at sunset he and Burnham went with two Jovians and a white flag toward the Jovian defenses. The misty red sun was sinking behind the horizon, so distant from the huge planet, when they reached the Jovian works.

The two flipper-men blindfolded them before taking them through the dirtworks and entrenchments, no doubt at Halkett's order, and took off the bandages when they were inside. Crane and Burnham saw before them the great enclosure that held the innumerable masses of the Jovian refugees. There was no shelter for most but at some sheds small portions of fruit and makeshift vegetable foods were being rationed out to some of them. The crowds of flippermen, bulky strange figures in the dying light, looked mildly at Crane and Burnham as they were led through the great enclosure.

As they followed their guides Crane saw for himself the battered Jovian forces he had pushed north for so long, with their crudely made atom-blasts and bombs, many standing guard round the inner works. Here and there in the enclosure were large dumps of atomic bombs, protected by shelters. Near one of these was a small hut toward which the two Jovians led them.

Halkett and three Jovians came out of the hut as Crane and Burnham approached. Halkett and his aides waited for them and the two earthmen went on toward them, with the slow laborious steps against the gravity-drag that were second nature to earthmen on Jupiter now. It was a strange meeting. The three had not met together since they had parted on South Jupiter eight years before.

Halkett wore an old suit of the metal body-strengthening armor and had a bandage round his lower left arm. His face was bronzed, and was lined and worn-looking, but his eyes were calm. He was a contrast to Crane and Burnham, trim in their metal body-protection with on it the insignia of the Council army that Halkett once had worn.

Halkett did not offer to shake hands with them, but waited. Crane's first words were confused and stiffly formal. He mentioned the terms.

"We can't accept them," Halkett told him calmly. "We've fought against them from the first and these Jovians would rather die than go to your Jovian reservations."

"But what else can you do?" asked Crane. "You know as well as I do that I've enough forces to take this place and that we'll do it if you don't give in."

"I know," said Halkett, "but the Jovians wouldn't do it if I told them to, and I'm not going to tell

them. Besides, I've a way out for these Jovians."

"A way out?" Burnham said. "There's no way out with your works completely surrounded."

One of the Jovians beside Halkett said something to him in his odd bass voice. Halkett replied to him patiently, almost gently. Crane was watching him. Halkett turned back to him.

"Be reasonable, Halkett," Crane urged. "You can't save the Jovians and there'll be just that many more of them killed in the attack."

"Do a few more Jovians killed now make any difference?" Halkett asked. "After all those killed on South and North Jupiter?"

He looked beyond them, thoughtful. "I wonder if Gillen foresaw any of this that's happened on Mars and Jupiter when he made his flight? What would Gillen think, I wonder, if he came back and saw all this that he started?"

They were silent for a little while. The short Jovian day was over and with the sunset's fading, twilight was upon them. Callisto and Io were at the zenith and Ganymede was climbing eastward, the three moons shedding a pale light over the great enclosure. Dimly they disclosed the masses of dark flipper-forms about Crane and Burnham and Halkett.

BURNHAM and Crane could hear with Halkett the occasional bass voices of the Jovians that were the only sounds. Most of them were silent and did not move about, huddling in masses for the night. By the inner works the Jovian fighters still stood calmly, big, dark motionless shapes seen strangely through the dim-lit darkness

Crane spoke with an effort, "Then that's your last word on the terms, Halkett?"

Halkett nodded. . "It's not mine, but that of the Jovians themselves"

Crane's restraint broke momentarily. "Halkett, why did you do it? Why did you become renegade to your own race, no matter what happened? Why have you made us hunt you north this way, fighting against you and with a duty to kill you?"

"I'm not sorry, Crane," said Halkett. "I've come to love these Jovians—so mild and child-like, so trustful to anyone friendly. It just seemed that somebody ought to stand up for them and give them at least a chance to fight. I don't care what you call me."

"Hell, let's get a rocket and the three of us will head for somewhere else together!" cried the Jimmy Crane of ten years before. "Some other planet—we'll make out without this damned Jupiter and earth and everyone on them! How did we three ever get into this, against each other, trying to kill each other?"

Halkett smiled, grasped Crane's hand then. "Jimmy!" he said. "You and Burn and I, back with Drake's expedition, three kids—you remember? But we can't change things now, and none of us are to blame, perhaps no one at all is really to blame, for what's happened."

Jimmy Crane with an effort became General James Crane. "Goodbye, Halkett," he said. "I'm sorry you can't accept the terms. Come on, Burnham."

Burnham tried to speak, his face working, but Halkett only smiled and shook his hand. He turned and went with Crane and the two Jovian guides, to the inner edge of the enclosure's defenses.

They saw Halkett standing with his three Jovian aides where they had left him. He was not looking after them. One of the Jovians was saying something and Crane and Burnham could see momentarily in the dim light Halkett's tanned, worn face as he turned to listen.

Crane and Burnham got back to their own camp and Crane called his officers. "We'll not delay attack until tomorrow but will start in two hours," he said. "They'll not expect an attack so soon."

Halkett must have expected it, though, for when the earth-forces moved upon the Jovian works from all sides they were met by every atom-blast of the Jovians. Europa had climbed into the sky by then and Jupiter's four moons looked down on the terrific assault. Blasts roared deafeningly and the thundering detonation of atomic bombs followed each other ceaselessly as the hosts of earthmen clambered into the Jovian works.

The Jovians beat back the attack. Crane concentrated forces in an attack on the enclosure's west side. He sent his rockets overhead to add to his barrage of atom-bombs and managed to make a breach in the western defenses. Halkett, though, flung all his Jovians to close these openings and Crane's forces were beaten back from it after terrible losses on both sides.

Dawn was breaking after the brief night as Crane ordered the third attack, one from all sides again with the heaviest forces on the western side. This time Halkett could not concentrate his forces to hold the western breach. The ground heaved with the roar of bombs and blasts as the earthmen struggled in with high-pitched yells and with hand blasts spitting.

They poured into the breach despite the mad resistance of the remaining Jovian fighters, while on the eastern side the earth hosts also were penetrating the Jovian works. Then, as Crane and Burnham watched from the camp outside, they saw with the rising of the sun the sudden end.

The whole interior of the great circular Jovian enclosure went skyward in a terrific series of explosions that wiped out not only all of Halkett's Jovian followers and massed refugees but most of the Jovians and many of the earthmen fighting in the surrounding works. There was left only a huge crater.

"The dumps of atom-bombs there in the enclosure!" cried Burnham. "A blast must have reached them and set them off!"

Crane nodded, his face strange. "Yes, a blast and in Halkett's hand. He set them off to wipe out his Jovians rather than see them sent to the reservations."

"My God!" Burnham cried. "That was Halkett's way out for the Jovians, then———old Halkett———"

Crane looked stonily at him. "Didn't you see that that was what he meant all the time to do? Give orders to round up those last Jovians in the works and bring them in.

"Then send this message back to earth. 'Last Jovian base taken and renegade Jovian leader Halkett dead. Jupiter under complete control. Accept my resignation from Council Army. Crane.'"

THE END.

The Radium World

By FRANK K. KELLY

(Illustration by Paul)

We labored at the task for hours, carefully keeping our faces averted from the siren brightness of the Pool.

THE RADIUM WORLD

By the Author of "The Light Bender"

CAPTAIN GRANT, commanding officer of the Terrestrial space-liner *Trident,* took an unsteady eye from the luminous glow of the Danler spacial navigation chart, pushed back from the curved steel shield of the giant ship's control board, and got up with resolution. There was room for him to stand erect in the tight-squeezed machine maze of the pilot's cabin, but no more. A sudden rebellion rose within him against the hot closeness of the control-room.

He turned a restless eye, normally a steel shade of clear grey, (but at the moment red and jaundiced-looking from over-indulgence in ancient synthecholic) and stared at the stiff straight back of Jimmy Brame, the ship's second officer. The latter's attention was riveted on the graph of a fluctuating pressure-gauge.

"Look here, Jimmy," Grant said suddenly. "You can handle her as well as I can. I do wish you'd go ahead and do it. I'm rather fed up. . . . Damn!" He rubbed an aching head tenderly. "Damn all farewell parties! Suppose I really shouldn't have taken that last one, though. . . . At stuff of Tilton's was strong enough to walk. Damn!" He took in the stiff angle of the second officer's Boston back, indicating Brame's private opinion of farewell parties, and those who went in for them, and grinned appreciatively. "Well, I'm shoving off, Jimmy. G'night."

Brame gave him an absent nod.

"Um—deviation point three four two compressor seven check—O K, sir. G'night."

He did not look up from his graphs. The captain, yawning prodigiously, swung down the companion ladder dropping into the ship's mid-section from the bridge. At the bottom he removed carefully from a mysterious pocket of his gold-and-white Fleet uniform the blackened remnant of his old pipe. Use of tobacco is forbidden by the Vice Laws of 2026, along with a great many other things, but Grant had been initiated into the seductive mysteries of the fragrant weed at Harvard-Of-Earth in undergrad days, and had stuck most stubbornly to it since.

If the Vice Board had a man aboard the ship, which was more than likely, the chances were that he'd part with a sizable slice of petty blackmail. (All Vice Agents blackmail as a matter of course.)

Still, he could afford the luxury. The compensation of a commercial space captain these days is most certainly not a pittance, and the giant *Trident* was Star Lines' pet Mars liner. . . . Besides being the crack ship of the far-flung Star Fleet.

There wasn't a man in the organization who wouldn't have given his best eye-tooth for Bob Grant's job. Grant knew it. And he'd bullied Vice men before, the rats!

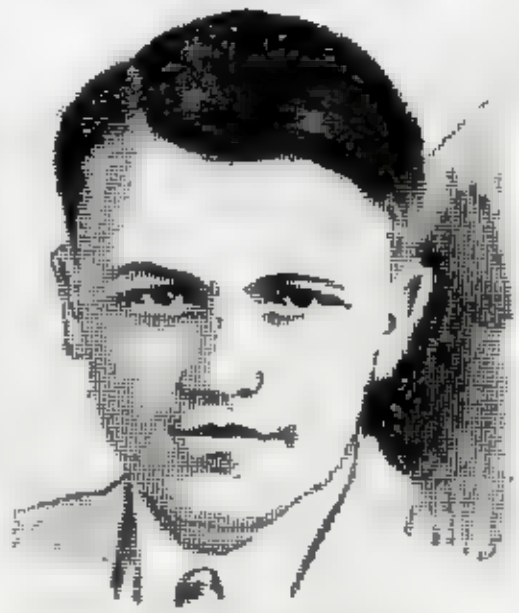
Defiantly he lit up. The ship's decks were close to desertion—it was nearing midnight (ship chronometer time, of course) and habit had sent most of the crowd of passengers to their sleeping-cabins—so he was reasonably safe from the keen eye of a Vice man. He inhaled deeply, held the pungent bootleg fragrance deep in his lungs until they swelled almost to bursting, and expelled smoke with caution. (Cautiously, because Vice agents have a most annoying habit of materializing out of empty air.)

He took a slow way in the general direction of the sleeping-cabins. At the juncture of two silent deserted corridors he was faced with the necessity of deciding whether to take the direct route to his bunk, or the longer (and safer) circle through O-Deck. He decided upon the observation-deck. After all, the night was still young.

He stood several minutes by the giant glassite look-out ports of O-Deck. He liked the view from this angle of the ship. It *was* rather immense.

The stars burned coldly in a dark back-drop of absolute black that was tinged very faintly with the soft rose radiation of the Earth-Mars Insulation Beam; Earth was a round green ball in the infinite distances behind; Mars a study in scarlet swimming in the vast space ahead. . . . He always wondered what might happen if that impervious Beam-Tunnel were to falter for an instant—and let the ship go driving blindly unprotected into the living maelstrom of free space. Of course it couldn't possibly. But he liked to think about it, with the faintest tinge of vicarious horror.

O-Deck at midnight seemed subtly altered from the tense reality of ship "day," changed by some witches' alchemy into a soft vagueness of lights and shadows. An eldritch mingling of starlight slanted down upon the



FRANK K. KELLY

MR. KELLY, who is one of our most promising young writers, has given us here a colorful and vivid picture of some of the intrigues, adventures, and complications that will follow on interplanetary exploration.

We know that the opening of other worlds will doubtless bring to light precious things rare on earth, and that a merry scramble for them is likely to ensue. If creatures existed on Mars the most precious thing in the world to them might be water. To us radium by its scarcity commands values that dizzy one.

Here is the basis of a dramatic adventure, and Mr. Kelly with great skill makes the most of it. We advise our readers to watch the future progress of this talented young man.

scrubbed clean whiteness of the floor; gilded silver the empty rows of deck-chairs and deserted card-tables; melted the harsh modernistic outlines of the steelite wall-paneling into a bizarre white beauty. Grant liked it.

Someone was walking slowly along the corridor. The light footfalls moved softly in the direction of the observation-deck, faded an uncertain instant, and began again from across the floor. Grant's hand jerked guiltily at the forbidden pipe, hesitated, and replaced it in the corner of his mouth. His jaw set. If it were a Vice spy—but of course it wouldn't be. More likely another night stroller, sleepless, restive as himself.

The footsteps quickened abruptly, melted into a queer, half-running, half-stumbling sound, and suddenly stopped dead. A man's voice cursed, the words sliding off into a strange scream. A table toppled over with a muffled crash, closely followed by the tinkle of breaking glass. A chair thudded against the deck-wall, and smashed.

GRANT whirled, tensed. His eyes probed the vague blackness of the darkened deck. Shadow-shapes flurried in a corner, and a hurtling body suddenly erupted from them, crashed against the crumpled table, struck the chair, and slammed to the floor.

Grant strained his eyes. The body was that of a man. A man who writhed desperately in a steelite deck-corner, and struck out with helpless fists against his antagonist. Weird antagonist!

Have you ever listened to the whispers that come out of Mars' Red Deserts? Horror tales of the beauty and the silent deadliness of the creatures of those deserts? The zina is the most beautiful, and the most deadly of all Mars' deadly, beautiful things. It is a carnivore, cruel, blood-lustful, horribly cunning. It has the body and head of a flying thing, and the scintillating antennae, the faceted metal eyes of the insect. The eyes are red spots of evil wisdom, like those of some Earth vampire.

Grant caught the glimmer of scarlet eyes, and knew that the man on the floor was battling silently with a zina-vampire. The man's fight was horribly hopeless. No unarmed man can long evade the lightning thrusts of the great hooked beak, withstand the tireless flailings of the giant wings, struggle against the absolute blood-lust of the creature. This man was unarmed. If he had been armed at the beginning, the rush of the zina must have taken him unaware, before he had even time to reach for his weapons.

Grant plunged grimly—and hopelessly—across the shadowed deck, jerking at his Bressler electron pistol as he came. The Bressler is a deadly little thing, capable of belching a hot tongue of burning, flashing death. If he could get in a single shot—

The vampire whirled, in a motion so rapid that his eyes were unable to follow it, and launched its brilliant body savagely upon him. Desperately, he dodged. The needle-beak slid rustling along his shoulder, ripping ruthlessly through the metallized cloth of his uniform, searching out his throat. A long shallow gash opened in the base of his neck

Stinging nausea filled him. Frenziedly, he struck out with his fists, beat hard against the whirling net of brilliant wings that encircled him. It was the pipe that was really his salvation. Clenched unnoticed in his hand, it landed simultaneously with his knuckles full upon the fleshy underside of the cruel hooked jaw.

Sparks flew wildly, scattering a shower of hot burning tobacco over the gauzy beating wings. A network of flame caught in the glinting silky net, licked hungrily. An agonized thrumming pounded the air, engulfed Grant in a hurricane of blows that knocked him flat on the deck and drove the wind out of his body.

The Thing, forgetful of him, hurled itself backward frantically, beat the great wings against the loathsome body in an effort to extinguish the spreading trickle of tobacco flame.

Grant winced. Something quivered through his prostrate body like a cold shock. The vampire, gradually beating out the fire creeping along its wings, stiffened, staggered erect, and stood motionless, its grotesque bright head tensed on one side, almost as though it were listening. Grant felt the cold shock again, a queer sensation oddly like a mental command. The vampire lifted its scintillating wings and flashed across the dark deck toward the black opening of the center corridor, hung an instant against the jet background, and vanished from sight.

Something spat viciously. Grant, who had half-straightened, flung himself prostrate again, and listened with an icy trickle on his spine to the spiteful crackle of an ion flash that seared the air close above him, leaving in its wake a strong smell of burning ozone. Barricaded behind the bulwark of the overturned card-table, he swept the black corridor opening with a searching flash from his Bressler. Nothing moved, or shuddered to the hot touch of his silver flame-lance.

But when he had finished, convinced that whatever might have shot at him from the corridor had retreated beyond range, he caught the sound of light footsteps receding down the corridor, floating faintly back to him with the echoes of mocking laughter.

THE captain got cautiously to his feet and flung the unconscious body of the man he had saved across his shoulder. Keeping the Bressler in evidence in his right hand, he moved carefully up the dim-lighted ramp that connected the observation-deck with the sleeping-cabins above. He did not breathe easily until he was safely in his own room, the door locked, and his man made comfortable in the cabin's lower bunk.

By some miracle the unknown man had escaped serious wound, though his black cloak was torn and ripped savagely at the throat, and he bore several ugly gashes in the bronzed muscle of his neck. The captain got water from the wash-stand at the head of the bunk and bathed the brown forehead.

The man had a long, melancholy face and jaw, straight fine features, a good nose, and a firm well-made mouth. His chin was like hard-cut granite. His eyes were webbed with a myriad small puckered wrinkles that spoke of long hours in the sun. Grant liked what he saw, but was troubled with a conviction that he had once known someone greatly resembling this man.

The man opened his eyes. Grant narrowly escaped a murderous uppercut that began from nowhere and flashed upward in an arc from the bunk toward the point of his jaw. As it was, he took the blow on the shoulder and sat down abruptly.

"Well, of all the—"

The man in the bunk was sitting up. His eyes, which had been hard bits of flint an instant gone, changed subtly

at sight of the tattered gold bars clinging to Grant's uniform.

"Your pardon, Captain," he said contritely, helping the indignant Grant to a chair, "I'm afraid I took up where we broke off—out there." He waved an arm significantly toward the cabin door.

"I suppose I have you to thank for the sudden change in the—er—situation. I must say you were Johnny-on-the-spot, Captain. That devil caught me rather on the blind side. I—"

Grant was staring curiously at him. A sudden suspicion grew in the space captain's eyes, broke into dawning comprehension.

"Well, I'll be—Gray!"

"Grant!"

They shook hands warmly, and pounded each other with affectionate blows. Grant had been captain of the now famous 2024 grid squad at Harvard-Of-Earth. Gray, his inseparable roommate and chum, had been one of the most sensational quarterbacks the college's long history had known.

"Whew!" the captain said. "To think how near Harvard's never-to-be-forgotten Gray Ghost came to being zma meat! Jove, Gray, I believe if I'd known it was you I'd have been so paralyzed—"

Gray punched him in the shoulder.

"If you'd known who it was, you wouldn't have gone into that famous line rush of yours, eh? Thank you, Mr. Grant!"

But the captain looked grave.

"What devilment are you up to now, Gray?"

Gray looked so mockly indignant that the captain was hard put to keep from laughter. But he cut off the flow of humorous protests with a knowing hand.

"Listen: somebody aboard ship's after your well-known scalp; and there must be a damned good reason. The murderer's not doing it for pastime, you know!"

Gray nodded soberly.

"I know. I suppose I really ought to tell you after. . . . There *is* a reason for what happened out there, Grant. A damned good reason, as you say. I think you'd probably die of curiosity if I didn't, so I might as well tell you. Of course, you'll keep it under your hat."

The captain's eyes showed his itching curiosity. He stretched himself out comfortably in a long chair, set his pipe going, and waved an impatient hand.

"This place's double sound-proofed, if you're afraid of spying, Gray. Of course, if you think I—"

Gray looked reproachful.

"I was just wondering how to begin. There are so many places. . . . But I suppose you might say the thing had its start with Mej-Tel's madness, so I'll begin there." And the following was his story.

CHAPTER II

Space Madness!

I CAME reluctantly out of a thick sleep of utter exhaustion to the somber reality of my sleeping-cabin. The room was dark and very quiet. The faintly luminous face of the clock in the opposite wall pointed at half-a-minute past twelve, ship chronometer time. The warm blackness between my bunk and the clock was perfectly still. And then I heard it again.

A muffled beating sound of someone's fists pounding against the steelite of the cabin-door. A queer choking sound of rapid breathing that I didn't like. It was oddly like the dry rattle of wind in the throat of a dying man. It made me uneasy.

I got quietly out of the bunk and hurried into my clothes. In the space of ten heart-beats I had dressed, crossed the floor in silence, and thrown open the door. I thought I was prepared for whatever might come. But I was not.

It was Jad, my Venusian mate and a man who had been with me several voyages, who stood swaying gently in the opening, his great eyes rolling in a tight face-mask the color of chalk. I will not forget easily the look in those twitching eyes. Utter horror, revulsion, nauseated loathing, all were mixed indescribably in their deep pools. Every muscle in his clean-cut face was taut. Red flecks had gathered at the thin line of his lips. His hand was tight against his throat.

He staggered, and I caught him. His hand came away from his thin throat, and in the dim half-light of the corridor I caught a nauseating glimpse of a ragged knife slash cut deep into the thick muscles at the base of his neck. A sickening torrent of blood spouted from the wound, spread down his blouse to the floor. There was a growing crimson stain on my shirt.

I carried Jad into my cabin and laid him carefully on the single bunk. He made no outcry, though the pain of movement must have been terrific, said nothing except a struggling whisper:

"Mej-Tel—did this. He's gone . . . amuck. Got me. Throat. I'm through, Captain. . . ."

And after that, silence. Silence broken only by the sibilant whistling of his hard-drawn breath, the faint panting of his livid lips; silence that lasted while he watched me apply a crude bandage of surgeon's gauze to the ragged wound. And suddenly the whistling faded to a choking murmur, bubbled faintly, vanished. The breathing from the bunk stopped. I stood a little dazed, bewildered, surging with anger against the murderer.

And as I listened in the hot silence, a crashing sound came from beneath, a faint echo of raised voices mingled in tumult. I drew a sheet over the man on the bunk. Then, unlocking a drawer in the steel desk bolted against the wall, I withdrew my Bressler, which, though seldom enough used, was always charged and kept in good working order for an emergency. This was an emergency.

The sounds below suddenly increased. I recognized them as coming from the engine-room. Heavy feet thudded on the stairway spiral.

I crouched grimly at the side of the black well dropping from the control-room into the dark depths of the ship's vitals, the Bressler tightened comfortingly in my fist

A head appeared suddenly in the blackness below me. A taut, twitching, madman's head, with the grinning face-mask of an apparition, a lather of foam tight upon its thick red lips and yellow pointed cannibal teeth, a glowing fire wild-lambent in the single great eye rolling insanely in the leathery dark forehead.

A knife glimmered in the mingled light of the control-room, brandished in the muscular fingers of a giant black fist. A wild cry smashed the hot silence to protesting shreds.

I reached over the stair-rail and drove the butt of the Bressler into the dark face below. The giant only reeled back a little, shook his savage head dazedly at a blow

which would have crushed an Earthman's skull to fragments.

Then the knife slashed out and downward, digging a vicious red furrow in the muscles of my protecting, upflung arm. A white hot iron seared my left shoulder.

Frenzied by the pain, I aimed the Bressler blindly at the rolling eye of the madman and released the charge. The bright silver flame tongue licked eagerly at the black face.

I hope never to see that again. Sickened, I turned my head away. Something struck dully on the steps of the stairway, and catapulted down. There was a succession of falling sounds, ending in a sodden impact of flesh on steel—and after that, a heavy silence.

I tore my shirt in strips with my teeth, and fashioned a makeshift sling for my ripped arm. Then, forcing myself, I took torch in hand and descended the steps to the engine-room.

THE place was plunged in fetid darkness. In his frenzy, the cook must have encountered the wiring of the night Tomlinson "cold" lamps, slashed out blindly with his knife, and severed the connections. I swung the torch beam in a wide circle.

The white cone of light fell upon a macabre little group of bodies. I saw Gobrentz, the German, lying crookedly against the metal side of the wall, his soft blue eyes gazing peacefully at nothingness. A sudden sickness gripped me when I realized that his head was hanging from his neck by a single thread of tough sinew. Beside the German lay Exham, a little Anglo-Saxon with English written in every thin tight line of him. There was a clean slash in the wiry muscles of the Cockney's stringy neck.

Mej-Tel lay motionless at the foot of the stair, knife still gripped convulsively in his hand. Counting the black devil himself, I had lost four men to madness: Jad, the mate; Gobrentz, a forward ray-man; Exham, a beam operator, and the cook, Mej-Tel. Then—with six men left behind in that miserable little port of Jupiter, four others taken by the intangible plague of space sickness, four slaughtered by this accursed madman, I had left, besides Haj, my engineer, a half-dozen able spacemen with which to navigate the crippled *Sprite*. And twenty was her normal muster!

I cursed the black cook with all the fluency of four years' wandering in the odd corners of the universe. But suddenly I stopped, curses and breath alike strangling with a sense of utter disaster in my throat, when my roving gaze encountered the Tolstoi water generator. It was a smashed ruin! A tangled mass of splashed wiring, broken tubes, battered condensers, testified grimly to the efficiency of the knife of madness.

Rotten, devil's luck! Left here in mid-space with the single bottle of water in my cabin to last the eight of us until we struck Mars! One lone bottle of water to last three days! I stood staring at that broken thing like a man dazed, quite unable to believe the stunning evidence of my senses.

I was aroused by the stirring of the remnant of the crew, which had fled precipitately to the safety of hiding at the first signs of Mej-Tel's madness.

Silent, they gathered quietly beside me, staring hard at the ruins of the Tolstoi apparatus. They knew well enough what it meant—thirst. They were men who had known the tortures of a parched throat before, thirst on the scorching arid plains of Mars' great deserts, in the bleak barrens of the Devil Mountains of Neptune, in a hundred tight corners of the odd places of the Universe. Yet they did not flinch.

Haj, the engineer, shot me a queer glance from his squinting lidless eyes. I looked at him. He was an old Venusian, squat, moist-skinned, gray-faced, possessed of the colorless features of his ancient race. Superstition was deeply ingrained in him. He mumbled tonelessly, eyes now upon the steelite of the floor: .

"No water! Surely, there is a curse upon us, Pale One. We have terribly angered Ahj-Teh; God of Wanderers and of Water. His curse is terrible. We—"

I struck him sharply across the cheek with the flat of my hand. I knew that the men were watching with narrowed eyes.

"Shut up, old fool. We *have* water. Water enough, if we waste none, to last us until we strike the Black Well at Deimos. No more of that sort of talk!"

I knew that I was giving them a barefaced lie; and they knew it certainly as well as I did, but with the eagerness of the utterly lost they snatched at the straw. I saw relief in suddenly relaxed faces. Old Haj stared at me for a moment like one dazed, then abruptly recognition, sanity, a great gratitude flooded his liquid eyes.

I flashed my torch on the torn night-wiring.

"Haj! Get to work on this. We've got to have light, you know. And when you've finished, inspect all engines to see what damage, if any, was done them by the madman."

I turned on the spacemen, who still stood staring at the smashed ruins of the Tolstoi. I flung at them:

"Don't stand there like mummies! Welch! Glannel! Turney! You're detailed to clean up this place. It looks like a slaughter house. Filthy. Get to work! Eject those bodies through the aft beam tubes; and take Jad's out of my cabin. Poor devil!"

"The rest of you are dismissed. Get back to your bunks and sleep. Sleep, I tell you! Forget this! Don't think about it, and you'll be all right. And Barham! Stop staring at that Tolstoi! You look a ghost, man. Come out of it!"

I drove them, hurling orders. Haj got hold of the break in the Tomlinson "cold" wiring, and the night lamps gleamed frigidly in a space of minutes. When I had finished with the men, and turned to go up the stairway to the control-cabin, Haj was close following. He reported no visible damage to any of the engines . .

Above, in the control room, the two of us studied the navigation chart; a moving red dot on the luminous board was Mars, trailing behind her two faint specks in space, one larger and brighter than the other. That was Deimos, the nearest source of water.

A crawling green point of light inched its way deliberately across the wide face of the board, ever dragging itself nearer to Mars and her two satellites. I put my finger on the green spot.

"The *Sprite*," I said slowly. "Are you getting everything out of her, Haj?"

Something of life flickered in his tired gray face. He rather worshipped his engines.

"I think—yes, I'm thinking we'll be able to pull a bit more from those engines, sir. If any engines can do it—"

I shook him affectionately, impatiently.

"I know *you'll* do it, man."

And then: "Good night."

"Good night, sir."

The engineer took himself off down the dark well leading below. But I felt little urge to sleep. Far from it. My head was a broiling mass of turmoil, swinging in a blind circle—there were so many things to be done, so many difficulties to face, so many problems to be grappled, if we were to win to Mars with a crippled ship and a decimated crew. But if it were possible, I swore it should be done.

I did not care so much about going out myself. After all, why should I? I had lived, thrilled, experienced things beyond the ordinary ken of man; and they say that Death is the Great Adventure. But I could not think only of myself; there were the men, who held to life with a tenacious grasp, and Haj, who still wanted greatly to live. I had to think of them.

I strapped myself finally into the control seat, prepared for a sleepless all-night watch, though there was in reality but little that I could do. Emergency automatic controls kept the ship tightly centered in the Jupiter Insulation Beam, swung her swiftly from the path of approaching meteorites.

The ship's clock burred and struck. I glanced at it, started incredulously. It was only one o'clock, ship chronometer time! So much had happened in that one hour since midnight!

In the observation-plates the heavens glittered with the ice-dust of uncounted stars. Mars glinted very faintly near the giant bright corona of the sun. And Earth—Earth was an almost invisible green sparkle in space, far distant, aloof, but still very beautiful.

I lost myself in the ever-fascinating wonder of it. The clock whirred sleepily. I caught myself nodding. I think I must have dozed . . . .

CHAPTER III

Radium!

I TOOK my eye quickly from the viewpiece of the *Sprite's* single electro-telescope, and spoke into the engine-room speaking-tube. My voice was very hoarse and thick with thirst, but the welcome sight of the barren little planet swimming in the space ahead, with its promise of water, gave me a madman's strength.

"Deimos dead ahead!" I shouted wildly. "Prepare for landing! Forward beams reverse half-power! Aft beams cut off! Crew to landing-stations! Move!"

Below me, the thirst-mad crew wrestled insanely with the ponderous manuals of the forward photon-beams. Compressors throbbed a sullen song of power, groaned under the overload of hard-straining engines. The steelite shell of the ship, triple-braced as it was, quivered gently with the vibration.

And above in the control-room, I watched fierce streamers of released photons burst hotly from liquid captive light into free energy. The gigantic recoil slowed the ship perceptibly in her eager rush toward the approaching satellite.

I hesitated, hardly daring to use full power with the forward engines half-crippled from Jupiter warp. But the *Sprite's* velocity was far too great for safe landing.

"Full power all forward beams!" I shouted into the tube, casting caution to the winds.

The trembling black needles of the pressure gauges swung far over. Hot light gushed from the beam nozzles, backrushed soundlessly into the engine-room, filled the control cabin with the indefinable acrid sweetness of bursting light. Bright glowing plumes reached out far ahead of the quivering *Sprite*.

The light-ship dropped slowly down upon the scarred face of the dead satellite.

The valley was a nightmare in stone. Twisted masses of black rock covered the floor of a dust-thick plain that looked as though nothing had disturbed its utter barrenness since primeval ages. Alpine peaks weirdly like the jagged broken teeth of some gigantic stone animal walled in two sides of the canyon, which was shaped into rough semblance of a natural triangle. And finally, closing in the valley's mouth with a rampart of glowing ebony rock, lay the Man's Head peak—Man's Head and the Pool of eerie fire.

I saw the Pool first when I came out into the blinding sun-glare of the dust flats, garbed grotesquely in space-suit and quartz helmet, equipped with direction-finding instruments for locating the ship's bearings with regard to the Black Well. I had taken my observations upon the distant jutting peak that marked the Mountain of the Well, plotted our subsequent course in my mind's eye, and had turned to go back within the *Sprite*. Then something swung my head round as if it were set on an invisible pivot, and sent my eyes straight glancing toward the monstrous Head, with its crown of brightness.

The Mountain was formed of purest black rock, a dull satin sheened substance. It was un-Earthly in the slow fires that seemed to burn just below its murky surface, almost like a reflection of the Pool at its top. It was shaped into a mad caricature of a giant's monstrous head, with a gaping canyon slit for the great mouth, two pitted black craters for shadowed eyes, an outjutting promontory of jet rock formed into a foul travesty of a nose, and a pendulous drop of alabaster white for chin. I shuddered at that chin; in some indefinable fashion it twisted the whole shape of the Titan mouth into a cruel cold smile; turned the pitted eyes into the empty orbs of a monster skull; made the curve of the hawk nose ruthless and predatory. The thought was to come to me later that this Head had foreseen what my discovery of the Pool was to bring, the madness and stupidity it was to lead men into. But I had no inkling at the time.

My eyes swept up that gigantic face wrought in stone until they rested in stunned amazement on the burst of witches' light at its crown. Then something of insane fascination took hold on me, gripped my senses madly, lost me in a spinning maze of wildest sensation. The Pool was a molten lake of eca-radium!

It took no fluorescent screen or scientific knowledge to tell me that. The perfect fires that had their being at the summit of the Head flung the stunning fact almost in my face. The glinting brightness of that silver molten lake sent a slow madness creeping in my dazed brain.

But I managed, with a deliberate effort, to tear my eyes away. The Pool—this perfect lake of eca-radium, that valuable derivative of radium, was mine by right of priority. I was the first of all the myriads of the three worlds to lay my eyes upon it. And I was rich, rich beyond all dreams of avarice! Earth, I swore then,

should be rich with me; I would give her power that should make her the greatest of the sun's planets. I would wipe out cancer. I would—

Slowly I forced myself back to reality. There were yet boundaries to be staked, possession claims yet to be made and entered in the Recording Office at Korna before I could call the Pool mine.

I half-ran back to the *Sprite*, roused a phlegmatic and indifferent Haj, burdened the two of us with a pile of luminous stake-markers, and began the monumental task of encircling the Pool with an unbreakable ring of possession claims.

HALF-STUMBLING, half-walking, half-crawling on our knees over sharp-pointed slides of jagged rock, panting with an almost unbearable thirst, sweating beneath the load of our armor, we labored at the task for three unforgettable hours, carefully keeping our faces averted from the siren brightness of the Pool. But at last the job was done. We were very confident that our claims were now impregnable, incontestable. We were wrong.

I was standing back content, wiping the dust from the visor of my helmet, when Haj clutched suddenly at my arm, and spoke.

"Look there, sir!" he cried hoarsely, pointing. "A Martian! Warship too, by the look of her! We're in for it now, sir!"

I felt inclined to agree with his pessimism, but still I was insanely confident, holding to my faith in the priority of claims. The Martian vessel, a lithe rakish light space cruiser, had sighted us and was swinging down rapidly over the nearer foothills. In ten minutes she had landed, opened a side port, and disembarked a party of three men, attired like ourselves in suits, but bearing upon the gilded crests of their steelite-rimmed helmets the insignia of the Royal Space Fleet of Mars.

They came toward us slowly, casting curious, suspicious glances upon our glinting ring of claim-markers. And suddenly one of them, a tall, bearded fellow of commanding aspect and with a more elaborate insignia than his friends, grasped his companions' arms and gestured excitedly, pointed upward. I could guess what he was saying.

My heart pounded unaccountably. An ominous foreboding of disaster throbbed a warning in my brain. They had discovered the Pool, that much was obvious. What course of action they would take—

They came climbing up the jagged rocks toward us. The tall man called:

"What ship is that? What's your business here?"

His voice had an iron ring. I waited until they had come up with us; then, calmly:

"We are from Earth, Commander. Commercial cargo-ship *Sprite*, Terrestrial registered. We were Korna-bound from Jupiter, but an accident destroyed our water apparatus three days back, forcing us to land here to take on a supply. You can look over our papers if you wish, though I assure you they're all in order."

He seemed oddly hesitant, uncertain of himself. He cast a glance at the two others, who were young, handsome, evidently not far removed from cadet days. Finally:

"We'll look over your papers, Earthman. There has been too much synthecholic smuggling from Jupiter's trading posts lately. No offense intended."

I bowed stiffly, and led the way down the rock slope to the *Sprite*. The lock door was open. I motioned the three Martians in ahead of myself and Haj, and after some little hesitation they obeyed. I closed the outside panel and started the air pumps. Seconds later, we stepped over the threshold of the lock.

The Martian scarcely looked at the *Sprite's* papers. Instead, he kept glancing in a queer manner around the room, peered down the stair well into the engine-room, rapped gingerly against the walls of the control-room, and in general conducted himself so strangely that his companions stared at him in amazement.

Suddenly he whirled round on me.

"Your papers, they are good, yes. That is so. But your men are very thirsty, eh, Captain? They would like water?"

Haj made a queer choking sound. I suppose my desire must have shown all too plainly in my eyes, for he nodded, chuckled. Then his cunning face drew into grave lines.

"My ship—it has too much water. Yes. An oversupply, so much that my men, though they drink much, cannot hope to drink it all. It is good, sweet, fresh water. Very good! Yes."

He paused. Haj was panting like a half-mad animal. I could hear the men cursing weakly at the bottom of the engine-room spiral. Staring at him, I said angrily:

"Are you trying to torture us? Out with it! What is it you want from me?"

But I knew. I knew! He looked at me with cunning eyes. He said very smoothly and softly:

"Ah, the good captain will not allow his men to suffer from the so-great thirst when there is water in plenty to be had; that is so, eh?"

To myself, I cursed him. But outwardly I smiled and nodded, matched his smoothness with my own.

"Yes, Commander," I said swiftly, "I will see that my men have water. We shall get it in plenty at the Black Well, which is near here I believe."

His lips tightened. Muffled anger was in his voice, but I could have sworn that deep back in his strange eyes was a sardonic glint of contemptuous laughter, almost as though he was playing with me. He said:

"But why, my friend, should you go so far for water, when my ship has it to overflowing? You shall not! No! *I* will give you all you need!"

I watched him warily, unheeding the cheer that rose from the parched throats in the room below and came hoarsely from the pallid lips of Haj. I said, very slowly:

"At what price?"

HE HESITATED, with again that curious uncertainty that I had noted before, as if he was dubious of the attitude of his companions. One of them, I was certain, was not behind him, for the young officer flung me a glance of encouragement and support. But the other—he was thin-faced, with cruel, sensuous lips. I did not like him. He glanced now full at the Commander, and nodded very slightly.

The big man said in a soft voice:

"All the water you shall want, if you but give up your impossible claims to this radium mountain! If you do not—" He shrugged; smiled. "Or here says that he

found a quantity of synthecholic in your locker, my friend. And you will get no water . . . . "

I stared angrily at Or, the younger officer, who was smiling unpleasantly. "I am allowed that amount for medicinal purposes, sir! How do you make out that I am a smuggler?"

Or shrugged indifferently. "We cannot judge, Captain. But we will be forced to hold you for the Court of Korna's investigation; that is, if you do not agree to the Commander's very fair proposal."

I turned from him, looked down over the stair-rail at the sullen, half-rebellious faces of the men. I shouted at them:

"Do you agree to let these brigands rob Earth of what is rightfully hers by authority of first discovery? Will you sell a world's ransom for a pittance of water? The Well of Deimos is not an hour's travel away; if it's water you want, we can get it there in plenty! What do you say?"

Their faces mirrored a racking struggle of conflicting emotions: thirst against titanic riches. Earth's call won. They shouted defiantly, swarming up the stairway:

"We'll stick with *you*, Chief! Throw these yellow-bellies out of here!"

Mingled surprise and anger flooded across the cruel faces of Or and the Commander; the young Cadet, anxiety on his clean features, jerked at their elbows, pointing at the inner lock panel. They shook him off, cursing. Or was grabbing for the para-gun slung at his hip

"Cut that!" I shouted angrily, unwilling to see them massacre unarmed men. I swung the steelite hook of my space suit hard against his ugly chin. He dropped like a pole-axed ox, carrying the spitting Commander with him.

I heard a gasp from the younger officer. He looked at me queerly, whispered:

"Get their para-guns!"

I darted to the struggling heap of clashing metal bodies which represented the two fallen Martians, and jerked the deadly little paralytic weapons from their snug suit-holsters. I tossed them to the younger officer, who hastily secreted them in his armor.

The Commander and Or staggered erect at the instant my men from below came pouring up from the stairway. I stepped between the two hostile parties.

To the men: "Stay where you are!" To the Martian Captain and Or: "I think you see, gentlemen, that your proposal was not accepted!"

They glared at me. The Commander husked, swinging on the motionless younger officer: "Why didn't you attack when you saw us go down? This is treason!"

The younger man looked blank. "But, sir, what would you? I am disarmed!"

He showed his empty para-holster, gestured helplessly.

The Commander looked mollified at that. He turned his anger to me.

"What do you mean by this? By A-taz, I'll have you before the High Court of Korna for this madness!"

I regarded him coolly. I motioned one arm.

"Move," I said, my eyes on his. "Leave this ship. We owe you no allegiance; we are Terrestrial only. Go, and remember that our claims are first on the mountain of radium here!"

I had forgotten Or. The next I knew of him came with a wild shout from Haj:

"Sir! Look out!—Behind you!"

I half-turned, swung out blindly, and felt something descend with stunning force on my head. I sank into black oblivion . . . .

CHAPTER IV

Treachery!

WHEN I came again to consciousness Haj was bending solicitously over me, chafing my wrists and rubbing my hot forehead with cool hands. I stared up at him in a daze, only half remembering what had befallen. Then full reason returned, and I sat up, felt gingerly of a swelling lump on the back of my head.

Haj told me that Or had come up behind while I was haranguing the Martian Commander, and struck me over the head with the clubbed arm of his metal suit. I had dropped like one dead, and the three Martians, supposedly unarmed, had beaten a hasty retreat before the vengeful onslaught of the crew. The younger officer, in his hurry, had dropped a thermos flask of water from his armor before vanishing through the lock.

The crew since had somewhat quenched their thirst, and had given evidence of even being willing to go on to Mars without touching the Well, in order that we might lay our claims to the Pool in Korna before the Martians.

Haj said that they had paid no more attention to the *Sprite*, but through glasses he had observed activity aboard the Martian ship, and shortly a party of spacemen came out from the ship, destroyed with ruthless thoroughness all traces of our claim-stakes, and began laying down a wall of steelite about the Man's Head. A squad of green-helmeted ground troops was posted at spaced intervals along the Wall, armed with rapid-firing para-guns and Ehz-Ta grenade throwers.

And later in the three hours that I had lain unconscious in the *Sprite*, as the small red sun dropped closer to the horizon, a forward torpedo tube was trained by the Martian on the *Sprite*. A gun crew clustered grimly about it, tensed, waiting. And an officer in scarlet and with a bandaged jaw paced impatiently along the observation deck behind the menacing tube-gun, glancing now and again at the glinting face of some small object strapped to his wrist. He looked often at the fading orb of the weak sun.

"I think it means they intend to fire on us, sir," said Haj, and added as an apparent afterthought: "The one called Or shouted something to us as he left; sounded like '—we'll give you till sundown. After that—' I couldn't get the rest of it."

Realization stung my brain. For the first time I was able to believe that the warship actually meant to fire on the hapless *Sprite*. I sprang up, lashing Haj with a fusillade of orders that sent him hurrying down the engine-room spiral to rouse the crew to action. Fighting a nauseating weakness that gripped my splitting head, I strapped myself in haste to the control-seat.

And shortly I heard below the muffled throbbing of strained compressors, the faint soft hiss of swirling photon-beams, the subdued clatter of moving beam-manuals. I sat hunched in the bucket-seat of the control-seat, eyes tight and straining upon the wavering

finger of the light-pressure needle. Slowly, so slowly that my heart pounded a frantic tattoo in my temples and despair ate into my brain, did that accursed needle creep around the impassive face of the luminous dial.

The last thin crimson splash of the distant tepid sun bathed the dial in weird red light. I saw it: take-off pressure at last! I shouted hoarsely, half-madly, into the engine-room tube. Beneath me the engines bellowed, and light swirls leaped full-born in mad flashing from hot beam-nozzles,—and the *Sprite* shook the age-old dust of the plain from her fleet heels and rushed wildly upward into the black curtain of the sky. Faint, far below, I caught the baffled flash of the warship's fire.

But we were away, and in the clear. Mars ho! I grabbed the speaking-tube in an exultant grip and asked Haj for more power. The engines responded in a sweet song of sobbing strength, strength—and speed. And speed it was that we needed most.

I watched the dial-needles and prayed for more velocity. There was little doubt but that the warship would follow us. That officer I had felled, Or, thick-headed as he was, would most certainly realize the all-importance of first-claims. If I could but lay my case before the Recording Office at Korna, before he followed, then the Pool was mine!

I swung the telescope to focus behind the speeding *Sprite*. A silver needle was lancing out from the dark scarred surface of Mars' dead moon, and leaping after us with a certain indomitable doggedness. I shivered a little, felt a quake of wild fear. That wardog, despite the overwhelming lead we'd had, was most certainly overtaking us!

Overtaking us! The words had the ring of doom to my ears. For the *Sprite* was straining her sweet engines already to the utmost limits of their power; a little more, and the overload would finish them. We were helpless; there was nothing I could do to stave off the defeat that came leaping up from behind.

Half-sobbing with mingled anger and black despair, I watched that grim lance of silver flame that was the Martian leap swiftly upon the failing *Sprite*, draw even, and then pass us! There was no sign of hostility from her, for out here were the wide traffic-lanes for passenger-liners and Earth freighters. The war vessel did not quite dare to destroy an unarmed ship so openly.

I caught a glimpse of my enemy, the bearded Commander, through the glassite covering of the bridge as the battle cruiser slipped past, and finally left us far behind. He gave me a mocking, sardonic bow.

I think it hardly made impression. I had already plumbed the uttermost depths of black despair.

OF COURSE I stood no chance when my appeal came before the High Court of the Korna district. The facts lay very plain. The Martian Commander was all in the right, and I was all in the wrong—simply a usurper, a brigand, altogether a perjured villain.

The Chief of Korna's Recording Office testified glibly against me, and on cross-examination produced his records and showed that the patriotic Commander had forewarned him against my brigandage. I turned half-sick at that. The subtle irony of the man!

But still I held a trump card in the hole. And finally, in desperation I played it. Films. Thin strips of metal tape, upon which were recorded images of certain Martian officers ordering the destruction of my claim-stakes, substituting Martian markers in their place, then setting up a guard over the Head and the Pool. Films that Haj, luckily had had the supreme wit to take with the *Sprite's* single recording camera.

The Court-Hall, at the command of the judges, was darkened. Haj and a Martian officer-of-the-court who had knowledge of camera-operation went into a small booth set at the far end of the room, and began to prepare the portable projection apparatus kept there. I could see the sudden blanched faces of two of the three officers, who sat together in a close group. One of them —I think it was Or—stirred, and whispered urgently to his companions. One objected violently, but the other nodded and quelled the dissenter with a look. I swear that that one slipped a tiny glinting vial from his uniform, and concealed it in the shadow that lay about him.

The films began. A blur at first, gray, distorted, wavering. Then giving way to the bare dusty desolation of the valley floor, showing clearly the small figures of two Martian officers, long thin lines of moving soldiery. The officers were shouting commands—

Something hurtled across the dark room and splattered against metal. The images on the silver screen vanished abruptly. I caught Haj's angry exclamation.

The lights flashed on. And in the projection-room Haj and the operator stared blankly at the crumbling wreck of the projecting machine. Acid fumes bit at the white metal, licked hungrily at the thin spool of film tape caught at its centre.

Grim-faced, Haj thrust a thin bare arm down into that swirling deadly mist and gripped the little roll of record tape. He tore it from its fastenings by main strength, brought his arm up in an arc, flung the film away. It lit, rolled, came slowly to a stop.

I picked it up. The acid had touched. Not much certainly. But still, I knew, enough to ruin the value of those films as legal evidence. I shoved the metal spool inside my cloak, forced a smile, and gripped Haj's hand. He grinned at me, choking down the evident torture of his burned arm.

"The film is safe, yes?" he asked eagerly.

"Of course, Haj," I lied. "Great work! But you've got to have treatment for that arm. 'Off you go. Don't worry. I can handle the rest of this myself. You've won for us. You'll go, now."

He hesitated, staring at me. Then he saluted, went off in the solicitous company of two attendants. I swung round on the gaping judges.

"That is all of my case."

One of the Martian officers laughed unpleasantly. He gestured to his companions. I knew the meaning of that gesture. He was right. Earth had lost the Pool.

I almost wish now that I had let it stand at that. If I had known what was to come, how near the Pool would bring Earth and Mars to conflict, I might have. But as it was, I could not be content. I carried the fight to New Washington.

Leaving Haj to recover from the almost disastrous effects of his acid-burns in the comfortable surroundings of the Terrestrial Hospital at Korna, I took passage on the first space-liner leaving the port for Earth's Capital. And once in Washington, I went straight to the World Secretary of State.

I faced him in a small bare room in a certain unob-

trusive section of the Greater Capital, and laid my cards on the table. I had brought the damaged films with me.

The Secretary received my story calmly—and skeptically. But that big man has a keen mind, an open, unbiased intellect. He demanded proof. I showed him the package of films.

He took them thoughtfully, with something of his skepticism vanishing, and remarked that he knew a certain man in the line of films who would be eager to see what could be done with mine. I was told to come back in a week.

I CAME. At the end of the week prescribed, I sat again opposite the Secretary of State. He looked thoughtfully across at me from behind small round windows of lens-glass and many layers of fat. I do not believe you know him, Grant. But he is a very fat man, the Secretary, very indolent-looking, very jovial. Appearances are deceiving. For the eyes almost buried in the thick lines of flesh around his high cheek-bones are, if you look closely, queerly clear and piercing. The real intelligence of the man is evident in their bright quick depths.

"Diplomacy," said the Secretary after a long silence, "is a very ticklish business, Gray. When you try to convince a Martian who thinks you're doubtless some sort of irrational beast, that you've got something he needs, and that he should exchange for it with you something he doesn't want but you need, then you go beyond the safer realms of human diplomacy. It's devil-take-the-hindmost. It almost looks as though we're the hindmost this time, Gray. You've gotten us into a perfect devil of a mess.

"Mars needs that radium. But she can get along without it. Earth absolutely can't. We've wasted, and wasted, until radium's about the only thing we've got to fall back on. If we're not able to tap that Pool of yours, Gray, within the next three years, then we're finished."

He stared at me. "Earth will be through as a Great Power . . . . Understand?"

I nodded, a little shocked. He hesitated. Finally:

"Now. Those films of yours, Gray, have been developed, projected before the President, the Cabinet, myself, and the Commanders of our Army and Spatial Navy. They've convinced the Government of the justice of your claims.

"We've told Boma that Earth intends to lay title to the Man's Head and the Pool. And—this is confidential—the light cruiser *Falcon,* Captain Lanson commanding, has taken over the Mountain in the name of the Terrestrial Government."

He stared at me hard, hesitating. Then:

"Boma, as official Ambassador from Mars, has given us his ultimatum. These are its terms: Withdraw the *Falcon;* acknowledge our claims as absolutely false; proclaim you an outlaw, a brigand, an unvarnished pirate with a price on your head.

"And if we don't yield to those impossible terms—well, Boma is a secret member of the Martian United War Party. He means war. He wants war. He thinks that old Mars, strong and toughened by her eternal battle for survival, must take a younger, weaker Earth for her own.

"Of course, we refused his ultimatum. Refused, and saw him go aboard the battle cruiser he's had waiting in port the last three days, headed hell-bent for Mars. He'll go straight to the Red Emperor, and ask for war with Earth. Most probably, he'll get it.

"But we've still, Gray, one chance for peace. Earth will offer Mars free of charge our secret for producing water synthetically. She has always paid us an indemnity for its use. Now we'll trade it for all Martian rights to the Mountain and the Pool. With unlimited water Mars will be young again, won't need that radium.

"Here's Earth's official proposal. Recorded this morning by the World President, in the presence of myself and the members of the Cabinet. If you can reach the Red Throne at Korna before Boma, we'll still have a chance for peace.

"You must, Gray! There's a Star liner leaving Grand Central Space Terminal at twelve tonight; the *Trident.* She's fast, a crack Mars ship. Faster than Boma's cruiser, the *Breemoor.* If you board the *Trident* tonight—"

I nodded. My head was throbbing.

"I will, sir."

He passed a small messenger's pouch, sealed, across the table. He studied me a minute with those lancet eyes, and, suddenly grinning, stretched a firm hand to meet mine.

"Bon voyage, Gray!"

I saluted him, thrust the sealed pouch under my arm, and was gone.

CHAPTER V
War!

GRAY'S voice stopped. The captain looked at him, and said thoughtfully:

"A leak somewhere. Korna Intelligence got wind of your mission. And put a man aboard here—to stop you. That explains the pious episode of the zina."

Gray nodded. He was grave.

"Yes, I think so. But, look here, Grant, I've kept you up far too long as it is. I'd better be getting back to my own cabin. You need your sleep."

The captain ignored the words. He said:

"Got a question. Ever noticed anything wrong in your cabin after you'd been away awhile? Evidence of search, I mean. Little things. A disarrangement of the room, a scratch on your baggage that wasn't there before—"

Gray knit his brows in thought. He frowned.

"Right. Now that you mention it, I remember being troubled several times with an odd belief that something in my room had been changed in my absence. When I'd come back from dinner or a deck stroll, I'd find certain things I couldn't lay a name to. Things wrong with the arrangement of my cabin. They must have searched it often, looking for the pouch."

The captain nodded.

"Yes. If I'm not too curious, where *do* you keep it?"

Gray patted his arm-pit significantly.

"Right here under my shoulder. And I've got a Bressler under the other arm. Oh, I was pretty well prepared for the ordinary; but that zina—I hadn't counted on that."

The captain's eyes lit up suddenly.

"Gray! These Martians! What if they should de-

clare a state of war with Earth? We'd simply cut off the insulation beams, and they'd be pretty helpless. Surely they haven't—"

He stopped, sudden horror in his eyes. Gray smiled a little wryly.

"They have. A little over a month ago the Patent Offices in the War Building at Washington were entered and robbed of the blue-prints for the Ostler Insulation Beam. The thieves were traced to the Ambassador's Palace of the Martian Colony; the investigators from the State Department didn't dare go any farther."

Grant stared at him. There was a silence. Gray broke it with a protest that he should be returning to his own cabin. The words brought the captain out of a brown study. He said indignantly:

"Haven't you just told me that whoever's hunting your scalp has as much entry to your cabin as you have? That upper bunk's perfectly useless, Gray. You're staying here."

And Gray yielded, under protest. In five minutes he had divested himself of his clothes, said good night, and climbed into the vacant bunk. In ten minutes he was sleeping soundly.

The captain looked up at him in admiration.

"What a nerve!" he whispered, and went to bed.

THE party in the dining salon broke up at one and Grant, making his excuses, took a solitary way back to his sleeping-cabin, leaving Gray to follow on more slowly with an intriguing feminine acquaintance he had made.

The captain walked presently down a deserted stretch of corridor that ended in a dark, shadow-filled deck-corner. Remembering his experience of the night before he approached the corner warily, cast a searching glance into the vagueness—and with an abrupt motion flattened himself in the shadows.

He was very near an unshuttered look-out plate upon which was mirrored the silent black and white pageant of the stars. A white tongue of light had just licked swiftly across that black sky curtain. He strained his eyes for a second glimpse.

It came again. A regular spacing. Flash. Short flash. Long flash. Flash. A code, spelling out words that were meaningless to Grant. Flash. Flash.

He strove to locate in his mind the direction of that flashing. That it was somewhere on the ship he knew, but just where . . . . He'd struck it. From the helio-room, of course!

But the thought stiffened him. There was a night operator on duty always in the signal room, and certainly none of the *Trident's* men would be sending in a strange code—especially at this time of "night" It meant that the operator was not on duty . . . .

He thrust aside the idea that the signal man had deserted his post. He knew that the man was loyal, fully conscious of the fact that there must always be someone on watch in the helio-room. Someone must watch for the flickering of distress signals from some other ship, that might need the urgent help of the giant liner, and if unheeded might slip slowly into the limbo of missing ships—the unimaginable maelstrom of free space.

The operator had been overcome. That, Grant felt certain, was the answer. And someone was signaling. Flash. Flash. Flash. Flash. He pressed himself against the look-out plate, glanced behind the path of the speeding liner. And suddenly he saw it: a far-off wavering speck of light. Light that came and vanished, flickered dully. A distant helio. Sending now. Flash. Flash. Flash.

Gibberish to Grant. Clever code! He tried to penetrate its hidden meaning, and failed. Flash. Flash. Flash. The thought came to him that the operator would need him. That unknown signaler must not slip through him.

LIKE a star shell, the identity of the night signaler came in a burst to him. Gray's enemy, the K. I. agent! Korna Intelligence! Signaling . . . .

A sudden feeling of disaster grew in him. The signaling meant danger to the *Trident*, he was abruptly sure. He had to stop it. Cautiously, he moved up the ramp leading to the helio ladder.

Slow, silent progress along the ramp to the foot of the narrow steelite ladder. Light streamed from under the door at the top. But no sound came now from the sealed helio cabin. The signaling had stopped, and, abruptly, the light vanished.

Grant's spine prickled a little. In the thick gloom of the ramp, he strained his eyes for the darker shape of the cabin door above. It opened, and shadows swirled thickly an instant about it.

A vague black figure came down the ladder like a scuttling dark spider, and flashed past him. He whirled, struck out vainly with futile fists, lurched forward in the darkness, and sprawled upon the hard smooth metal of the ramp floor. The K. I. had won again. He listened for the soft mockery of laughter.

It did not come. And he realized abruptly that the conflict between Gray and himself and the unknown had tightened, changed from a sardonic game into a grim battle of life and death. Something had come insidiously across space in those night signals. A cold something, that penetrated icily into the *Trident's* vitals. Grant muttered to himself.

He became conscious of dragging movement in the cabin above him, a thumping sound across the metal floor that ended as suddenly as it had begun. Light flashed in the cabin again. And Grant moved with caution up the ladder, flung open the closed door, and entered.

Everything looked much as usual, save that the helio operator, sitting forward in his bucket-seat, seemed to wear an odd look of dazed bewilderment. But he saluted smartly enough at the captain's entry. Grant stared at him.

"What happened to you?"

The operator rubbed his head in a kind of vague bewilderment. He said slowly: "What happened to me! Why, sir, has—"

"Listen," Grant interrupted him. "Someone has been signaling in a foreign code from this room for the past half hour. How did they knock you out? Or did they?"

The operator looked at him rather pleadingly. He said at last:

"Don't know if you'll believe me or not, sir, but I can swear I was sitting here like this a little while ago, everything just as usual, when of a sudden some creepin' sort of white mist-stuff comes seeping under the edge

of the door, and whirls across the floor toward me. It got to me, billowed up around my face, and I felt kind of choky and sleepy and warm, and I had a feeling that somebody wanted me to go to sleep. I don't remember a thing after that, sir. Next thing I saw was you."

Grant knew when he was up against a blank wall. There was nothing more to be got from this man. He shook the other by the shoulder and warned him:

"I believe you. But I wouldn't try to convince anyone else with that story if I were in your place. Just forget it. And tell Mr. Hallton that an air-tight door should be put in here as soon as possible in the morning. We want no more of this. You'll have your own oxygenation apparatus. Good night."

The man saluted gratefully.

"Good night, sir."

Grant went down the ladder. He made a brisk way of the short walk to the sleeping-cabin, found the door locked, and entered with his key. He had not expected Gray to be there. Gray had seemed quite taken with the beautiful Martian, Edda Me-Tor. He must warn him about that.

The captain had divested himself of most of his warm uniform and was in the process of entering his bunk when Gray, whistling a gay tune, swung open the cabin door and came briskly in. Grant hid his grin.

"Did you see her all the way to her room, Gray?" he asked solemnly. Gray flung him a suspicious glance.

"Who do you mean? Edda? Why, no I didn't. She insisted on leaving me at about the first turn in the corridor. But she promised to take a deck stroll with me after breakfast tomorrow, so—" He made a little gesture. But Grant's wicked smile had faded. He was sitting on the edge of the bunk, watching Gray gravely.

With a sudden imperious motion for silence, he launched tersely into a report of the night's happenings. Gray heard him out.

"Looks rather like the K. I. people haven't given up getting me yet, doesn't it?" he said soberly. "If this keeps up, I'll be hiring you as a permanent bodyguard, Grant."

"Yes," said Grant rather absently, "You'll have to be careful." And then: "You say she wouldn't let you take her all the way to her cabin, eh?"

Gray stared at him, stopped the progress of his undressing.

"What do you mean?"

"Nothing," Grant said, looking away. "Nothing. Only—she's Martian, you know, and a member of the highest Circle. Just a friendly warning, Gray."

"Thanks," said Gray dryly. "I'll keep it in mind."

OVER breakfast the next morning in the salon, the talk at the captain's table was mainly of the party of the night before, and both Grant and Gray were content to keep it in that channel. Grant spoke very little, keeping his eyes on his plate when they were not watching Gray with a slight worried frown. He did not like the spell that the Martian Edda had seemed to cast over the Earthman.

Gray was not as troubled by Grant's story of the night before as he would have been a day previously, because he was very much absorbed in the conversation of the girl across the table from him. Her eyes and lips sparkled when she spoke in a low husky voice like some ancient fermented wine.

Gray thought that she was by far the most interesting woman at the captain's table, and certainly the most beautiful. She was. Small, and quick, and clean-lined, with a pensive, intelligent face, and the alluring eyes of some elfin goddess. . . . Others in the captain's party had already lost their heads to her: Tauro, the Venusian nobleman, a talented cynic and aristocrat. . . . Marchman, the middle-aged traveling representative for Interplanetary Trading Co. . . . Ehta, a slim young Martian boy, who worshipped her as a beautiful goddess, and who was the son of one of Korna's great titled houses, a member of the Upper Circle of Mars.

But all of them had regretfully conceded first place in her flickering affections to John Audley, the Terrestrial commercial artist (for such Gray was posing to be), though of that fact Audley had little or no inkling. He was certain that she liked him. Little side glances that were flung his way, the soft intonation of the husky wine-tinted voice when she bantered sparkling repartee with him across the table, the look in her dark elfin eyes—all told him that at least. But he did not know how much she liked him, if somewhere in her affections friendship ended and love began. That he would have desired fervently to know, but always she kept it skilfully from him, baffling, angering, teasing, overcoming him when he pressed her with a flurry of devastating banter.

He knew that she fascinated him. Fascinated, and a little more. It was very hard to analyze his exact feelings toward her. Often there was sheer attraction, lure, a whirling maelstrom of queer emotion. And often—a slight hesitation, a feeling of half-doubt that was almost a warning to stay away, when he struck well-hidden notes of ice buried under the warm exterior.

Tauro was speaking, leaning across the table:

"What do you think Meta* Edda, of this controversy between Earth and your planet over those mines of Deimos? I think myself this Gray is an unprincipled brigand. The word of a Martian officer is not to be so lightly taken as these Earthlings seem to think."

She wrinkled her clear brows thoughtfully.

"I do not know. That Gray—he tries so hard, seems so very much in earnest. It is hard to believe such a one a brigand. And yet—I know that the officers of the Majesty's Fleet are gentlemen. They do not lie, no. I—I think there must be misunderstanding somewhere, something that we onlookers do not know."

Tauro applauded mockingly, laughing.

"Bravo, Edda! You are most fair. Very fair! Isn't she, my dear Audley?"

Gray in his role of Audley answered carefully:

"Very fair, friend Tauro. She is very wise, Meta Edda. Almost, shall we say, almost as wise as she is beautiful."

A quick murmur of applause went round the table, while Edda flushed fascinatingly and uttered deprecating words. She was saying something to Tauro when Grant tugged urgently at Gray's right sleeve. The captain was rising. A starch-coated steward, very pale, stood waiting at Grant's elbow. Grant said:

"You will excuse us, please. We will return in a moment."

*Meta. A title of respect, applied to feminine Martian nobility

Gray, thinking with regret of his after-breakfast appointment with Edda, got up reluctantly and followed at the captain's heels. Grant was looking very grave. He dismissed the white-faced steward at the bottom of the ladder going up into the control-room and took Gray's arm, spoke in a low voice:

"We've sighted a Martian warship about one thousand miles behind us, Gray. I think she means some sort of trouble. Doesn't answer our signals; and there is the business of last night to consider."

Gray sobered at once, his stroll forgotten.

"You mean the K. I. man was signaling this warship?"

Grant nodded. They entered the control-cabin together and took a stand close to one of the great look-out plates. A tense atmosphere had invaded the crowded control-room. Brame, the second officer, turned a white strained face to them.

"She's coming up on us fast, sir. Must be making all the speed they've got. Shall I order more power in the compressors, sir? We can outrun her."

But Grant was stubborn. He shook his head.

"We'll have a talk with them first."

He glanced across the narrow catwalk between control- and helio-room. The signalman was on duty, alert, with an air of tenseness about him.

And suddenly a blinding flicker of light seared across the control-room. The helio snapped and jerked.

"Signaling us, Grant!" Gray said excitedly. The captain was silent, watching the furious fingers of the helio operator. Presently the man rose and passed the message across.

"ABOARD H. M. S. BREEMOOR. TO THE COMMANDING OFFICER OF THE S. L. TRIDENT. MESSAGE FOLLOWS:

"STOP SHIP IMMEDIATELY. YOU ARE LAWFUL PRIZE OF WAR, AND AS SUCH WILL BE TAKEN BY FORCE IF NECESSARY. HOSTILITIES NOW EXIST BETWEEN OUR GOVERNMENTS. THE CONSEQUENCES OF ANY RESISTANCE WILL BE ON YOUR HEAD.—BOMA, COMMANDING, H. M. S. BREEMOOR."

"Boma!" Gray cried. "It's Boma's ship! Do you see? The fool thinks we're already at war? What will you do, Grant?"

The captain, grim-faced, was speaking tersely to the helioman. "Take this message:

"ABOARD STAR LINER TRIDENT. TO THE COMMANDING OFFICER OF H. M. S. BREEMOOR:

"SEE YOU IN HELL FIRST. THIS IS PIRACY! WILL REPORT YOUR ACTION TO THE INTERPLANETARY BOARD AT KORNA AT ONCE.—R. GRANT, COMMANDING, S. L. TRIDENT."

The helio swung and flickered. Gray noted the sudden increase of activity aboard the warship's decks. Guns swung swiftly round toward the defiant Trident. Gun crews took stations, clustered grimly about their shining weapons. Green-helmeted boarding parties gathered in squadrons before the cruiser's exit-locks.

The Breemoor was signaling again:

"OUR NATIONS ARE AT WAR. REPEAT YOU ARE LAWFUL PRIZE. LAST WARNING.—BOMA, COMMANDING, H. M. S. BREEMOOR."

And suddenly Gray shot across the narrow space of the control-cubby, grasped the *Trident's* beam-controls, and swung them far over. Grant gasped.

"A trick! To get our attention on the guns, while they try a hull shot with a forward projector-tube!"

THE *Trident* was diving. Down, down, ever down. Almost to the far edge of the Insulation Beam, and then zooming as swiftly back again. The projector-bolt had shot on past the whirling liner, a hot licking tongue of bright flame.

"Torpedo!" Grant shouted into the speaking tube. A harsh whine came up from the bottom of the *Trident*, and a silver spinning object shot out from the liner's nose in a direct line for the warship. The *Breemoor* did not even deign to swerve. A perfectly aimed salvo from the forward guns, and the bright object burst into a mushroom of futile flame. That was the *Trident's* feeble gesture at resistance.

After that, contemptuous gunners aboard the Martian laid down a perfect barrage of electronic bolts about the hapless liner, ringing her with row after row of heat bursts that came close but did not touch her. The *Trident's* feeble armament could not even penetrate that barrier of energy. The fight was over. Grant knew it, and spoke bitterly to the white-faced helioman:

"Take this message. For the sake of the passengers, Gray:

"ABOARD THE TRIDENT. TO THE BREEMOOR. MESSAGE FOLLOWS:

"YOU WIN, DAMN YOU!—GRANT, COMMANDING, S. L. TRIDENT."

He did not look at Gray. They stood together, silent, bitter, sick with futile anger, while the *Trident's* engines slowed and died, leaving the ship curiously desolate and silent. The luminous tricolor of Earth faded with reluctance from the *Trident's* blunt prow.

The warship, triumphant, swung in closer to the *Trident*, and prepared for the debarkation of boarding parties. Gray could see the ordered excitement aboard the *Breemoor*, the swift marshaling of fierce-visaged green helmets, almost glimpse the victorious smiles of the ship's officers. . . . And suddenly, it was all gone, wiped away into nothingness.

A bright spinning object had leaped suddenly from the *Trident's* nose, bridged the narrow gap between warship and liner so swiftly that the *Breemoor* had no time to move, and struck. There came a fierce mushroom of yellow flame, a wild burst of flaring light—and the *Breemoor* had crumpled like a ship of cardboard, a child's toy that a giant's hand had smashed.

Gray, exultant, was pounding Grant's shoulder:

"Got her, Grant! By glory, you owe some torpedo man aboard this ship a vote of thanks! We've won, man!"

But Grant was curiously silent and grave. He said at last:

"But we'd surrendered, Gray. It was rather beastly to take them unaware like—that. We've violated our surrender."

Gray shook him a little.

"Did they hesitate because we had women and children aboard, passengers who couldn't fight?"

The captain's face hardened.

"No, by the Lord Harry, they didn't! The beasts!"

Gray shook his head gravely.

"No, Grant, not beasts. Just men—men at war."

Later, as they left the control-room together, Gray said thoughtfully:

"I wonder if Boma could have known about the pouch? Those signals. . . ."

Grant looked speculative. He said:

"I wonder!"

CHAPTER VI

Midnight on Mars

GRAY stood watching the myriad sparkling lights that came rushing up to him from below The *Trident* dropped down in a long smooth slant toward the great irregular splash of luminous glow that marked Korna Space Port. They had made Korna at last! Korna, first city of Red Mars!

The ship's announcers blared it in metallic monotones: "Korna! All passengers who are debarking at Korna use exit-ports numbered Five, Six, and Seven; take places on Z-Deck. Baggage windows open now. . . . All passengers debarking at—"

There was a speaker blaring hoarsely directly above his head, but if he heard it, Gray gave no sign. He stood a slight figure in black, close by the hulking mechanism of an exit-lock, dark cloak caught loosely about him, eyes intent upon the open door across the deck through which the passengers debarking must come.

He had already looked through the crowd on the deck. Edda was not there. A glance had told him that: the crowd was small and thinly scattered on the wide deck-floor. There were not many debarking here. The ship's list this trip had been made up principally of commercial travelers with business in the great polar cities of Brez and Trela; not likely to debark here in quiet Korna, small city hanging close to the barrens of the Red Desert, unimportant in the widening circles of interplanetary business—but withal, a city of considerable power, as the ancient seat of Martian government.

Gray noted among the crowd a little group of power lobbyists gathered in a corner by themselves, a cold-eyed woman with a flurry of respectful servants and a harassed-looking male escort who was addressed as "Meta," a dowager duchess from a small Balkan Earth nation, making obviously a first visit to Mars; a sprinkling of debutantes voyaging to the Red Court of Mars, the chairman of a powerful South Martian Political Union—and the inevitable group of servile nonentities who attached themselves as opportunity offered. Nothing unusual here—it was a typical passenger-liner crowd.

Gray was waiting for Edda. She had told him that she was debarking here, rejoining her father after a long stay at a Terrestrial university. But so far she had not come. He hoped fervently that she would, and watched with impatience the changing glow of lights in the pilot's cabin—at red the door across the deck would swing closed, and the exit-locks be opened by spacemen.

The neon light flamed red. The door across began swinging slowly shut, at the same instant that a slight figure garbed in daring scarlet half-ran down the metal steps, slipped through the narrowing opening, and hurried breathlessly up to Gray.

"Oh, I have kept you waiting! I am sorry, Mr. Audley. You will forgive me, yes? But really I had no idea it was so late. . . . Why, think of it, I might have missed debarking! That would have been unbearable!"

"It would," Gray laughed, "for me."

She smiled at him approvingly. "Always you are the polite one, saying the right thing in the right place. Yes, I am glad that I was not too late to disembark with you. You must come with me to my father's house. He will most certainly want to meet you."

But there was a curious lack of warmth in the words. Almost insincerity. Gray could have sworn he caught a glint of moisture in the dark eyes. Afterwards he was to remember that tear, and know its meaning. But now he was puzzled, bewildered.

"Later, Meta Edda. First I must attend to this boresome business. I am to paint for one of your great ones. He would be difficult if I kept him waiting. But later—certainly."

She did not protest nearly as much as he wanted her to. A silence fell between them. Surreptitiously he studied her, watched the changing lights in her dark eyes, the soft rustle of her daring scarlet, the perfect curving of her half-parted lips. She was like some ancient, subtly-tinted painting, he thought. The exotic fascination of her alien beauty swept him again.

He was leaning forward to speak when the captain came hurrying up to where they stood. Grant was frowning a little. He bowed politely to Edda, and drew Gray off to one side.

"Careful there, old man. You're playing with a mighty dangerous brand of fire. And—you might get burnt." He shrugged expressively. Gray was half angry.

"Just a friendly warning?" he inquired softly, dangerous lights in his eyes. Grant gave him an almost pleading glance.

"Yes. Forget it if you want. And now—this other business." He hesitated. "I've got a man in the crowd watching for anything out of the ordinary. He'll stick near you. I don't believe K. I. is willing to quit yet. So—watch yourself."

Gray promised. The captain stood a moment in silence. Then: "And—good luck, Gray."

They shook hands warmly in the darkness. The captain spoke a last word and moved off with reluctance. Lights were blazing down now on the metal deck, springing into the fierce, almost dazzling glow of the great Terminal Luminors. The great ship dropped easily into the resilient grasp of a landing-cradle, came to rest with scarcely a jar.

Gray rejoined Edda by the lock mechanism. And presently a spaceman in the blue-and-white uniform of the Star Company came up to them, took the smooth wheels of the lock panels in his bronzed capable hands. The inner panel moved slowly, to the accompaniment of a subdued mechanical clicking.

GRAY and Edda joined the thin stream of passengers pouring into the air-lock, a small square chamber, metal-walled, that jutted out from the rounded side of the ship. And presently the soft clicking behind them faded, stopped. The outer panel slid open.

Gray felt the soft rush of the ship's air moving past him into the lighter Martian atmosphere. He took a deep breath, and thrilled to an electric tingling. The gravity of Mars took hold on him. It was curiously small and ineffective, after the Earth Normal maintained in the ship. Edda swayed a little against him.

A queer feeling rose in him at her warm touch. His senses swirled; and then remembering Grant's warnings he steadied again. He moved away. The white-lit opening of the air-lock gaped before them. He took her arm politely, stepped out beside her on the top of the narrow steelite debarking-ladder that led down to the ground. The ship was nestled snugly in the high curving uprights of a landing-cradle.

The passenger-stream was in some confusion, seemed backing uncertainly upon itself. A babble of conflicting voices came from below, where the first of the line of debarkers were gathered. A little plump man encased in a smooth-fitting uniform covered with overmuch braid was haranguing the crowd. His insignia proclaimed the Port Officer of Korna.

Gray pushed a slow way for Edda and himself through the swirling confusion. They were near the foot of the landplank presently, listening to the final words of the little man:

". . . . Owing to strained relations between our respective governments, I will be obliged to hold all of you until a decision on the matter can be given. This is an official order from the Palace, issued at midnight. All ships incoming from Earth are to be held."

Gray went cold. Strained relations! Then the possibility of open hostilities soon was very strong. If he could but reach the Palace of Gage, Earth ambassador to Mars, give his message of peace in time! He must

Edda said suddenly, after a silence:

"Oh, this is impossible! I am going back to the ship, Mr. Audley. I will wait for you on the landing-deck. Surely this madness cannot last! I am sure Jan-Shawan will let us through before very long. I will wait for you. Come for me when we are allowed to disembark."

Without giving him opportunity to reply, she had gone. Gray looked after her in mingled bewilderment and regret. She would have to wait for him longer than she knew. He would have no time to return to the ship if Grant's ingenuity found a way through the port guards, as it must.

Someone brushed crushingly against him. He looked up with an angry exclamation on his lips, and caught the brusk nod of Grant's head. The captain had come hurriedly down the gang-plank. He was asking all passengers to return to the ship. And reluctantly, they were going. The crowd thinned.

Gray joined Grant and the little port officer at the foot of the landplank. The captain had evidently known the small man before. He said, pretending complete ignorance:

"What's this about, Jan-Shawan?"

The Martian was suddenly voluble. He burst into eager explanations.

"Madness, Captain, madness! This accursed radium they've found on a mountain of Deimos; the Palace and those stubborn-heads at Washington—always begging your pardon, sir—have almost come to war over it. There are rumors that Boma's left Earth and headed for the Throne, to ask for breaking off of relations with Earth. They're saying Korna Laboratories has discovered a new method of insulating light ships against the radiations of free space, a method that will make the Spatial Fleet independent of Earth's Ostler Beam. I don't know. I don't like it."

"Most likely we'll have war; and me, Jan-Shawan, with three companions and seven offspring in Brez!"

He began a long harangue upon the many difficulties of a poor and down-trodden Port Officer. It was very evident that he was of the Martian Peace Party, wanted peace and plenty at any cost.

Grant winked at Gray.

"Of course, of course," he said soothingly, in an interval when Jan was recovering his spent breath. He leaned over and whispered something in the little man's ear; Gray saw the flicker of interchanging gold-edged credits.

The Martian hesitated, torn between cupidity and a strong sense of his own wounded honor, hesitated, and was lost. He wrote rapidly on a scrap of synthe-paper and handed it to Gray. "This will pass you through the guards, sir." He looked at the solemn Grant: "Remember, a personal favor only to you, Captain. For no other would I do this. I swear that." And to Gray: "Begone with you, my friend!"

Gray was gone.

GRAY walked on impatient feet through the silent deserted streets of old Korna, ancient city of Mars. He passed jutting pillared buildings artificed in a weird un-Earthly style reaching up in silent majesty to the black sky. Side by side with these were evidences of an older, wiser civilization, garish night clubs, hybrids, maintained for the dubious benefit of unwary Terrestrial tourists, whose glaring midnight lights flung pools of white glow into the street.

But more often the twisting ways were dark and empty, illumined here and there by the dim red beam of a night lamp, or by the fitful glow of the racing Moons whirling by above. There were ominous rags of cloud in the dark sky, and the Moons played strange hide-and-seek among them. But the clouds were thickening, half covering the sky. There was a dull promise of coming storm in the electric air.

A promise of approaching storm that was both in the air here, Gray thought, and in the tightening relations of the worlds of Mars and Earth. If he but reached Gage's Palace in time, one storm might be averted. He quickened his already rapid pace.

At intervals he flung a searching glance along the length of narrow street behind him. Always he found emptiness, shadows, nothing that moved. But he was wary. Though it began increasingly to look as though the port blockade had baffled the efforts of the enemy, since so far he had proceeded unmolested, yet he did not allow the quiet to relax his vigilance. It might well be the ominous quiet before the storm. . . .

He swung round a darkened corner into the Street of the Palaces, took three steps in the direction of the ivory magnificence of the Terrestrial Mansion, and stopped dead, an involuntary cry of surprise wrung from his lips. For facing him was Edda, disheveled, panting, her dark eyes exotic pools of distress. She did not meet his glance.

"Edda! How did *you* get here?"

"I had to come. Jan-Shawan is an old friend of my father's, and I forced him to let me through. I had to come home tonight. My father—is very ill. And I thought I knew Korna, knew it as I know the streets of your own Washington. But I didn't. I lost myself, wandered in a panic, running. And I came here."

Gray's sudden suspicions had vanished, melted before her obvious distress. He said softly:

"Poor little thing! Lost! Well, you're not lost now. You'll come with me to your House of State, and we'll find where your father's house is. We—"

She was suddenly very white, face drained of all color.

"No, no! I couldn't go there! We'd lose too much time! I must go to my father—now! Oh, my dear, you will take me, won't you?"

She moved closer to him, soft mouth and lips subtly pleading. Gray looked at the scarlet bow of the parted lips and yielded inwardly. He took a half-step toward her, was reaching blindly to sweep her into the circle of his arms, when his glance moved up to her half-hidden eyes. And suddenly he recoiled, anger and horror mingled in his brain.

The eyes were savage, aflame, hot pools of all the blood-lust of the Scarlet Planet. The wild lure in them was the lure of exotic Mars, something subtly deadly and forbidden. Her lithe hand moved from under the protection of her cloak and lashed at him.

Horror choking him, he caught the slim ivory hand with the tiny knife glinting evilly in its stubborn grasp, tore the little weapon away, flung it in the street. She fought him like some captured wild animal.

"Edda!" he cried in horror, "Are you mad?"

She crumpled suddenly in his grasp, the murderous leaping flame gone from her dark eyes. Their jet pools were suddenly lacklustre and lifeless.

She said wearily, as he released her,

"I wish you would leave me now. I am tired. I have tried to do my father's bidding, obey his commands, and I have—failed. I am your K. I. agent. I am your attempted murderess. It was I who signaled that night from the *Trident's* helio-room, who made my excuses that I might be rid of you to do my work. . . . I hate you! I hate Earth! Go away, I tell you, and leave me. I do not want ever to see you again. Go away!"

Gray looked down at her, where she lay crumpled in a pitiful little heap on the street. He could not find it in his heart or brain to hate her. Yet the fascination she had held for him was gone, turned bitter cold. He could look at her without passion. And understand.

Mars was all to her that Earth meant to him. Home. Country. A proud heritage millenniums old. Something to die for, to hold sacred. Race!

But a curiosity was devouring him, and anger. This man, her father—after all, it was he who was at fault. She was not naturally the tigress. He remembered her words to Tauro: "I think—I think there must be something that we onlookers do not know, misunderstanding somewhere." Her father had aroused this madness in her. A great hatred for the man rose within him.

He leaned over Edda, shook her gently.

"Who is your father?"

She struck his hand away, spat at him.

"My father—my father was Boma. . . . You murderer!"

HE WAS stunned by that. Boma! Boma, who was dead. Who had been destroyed utterly with the flaming wreck of his warship. He understood the girl's bitter hate. To her, he was the murderer of her father.

There could, then, be no possible reconciliation between them. This girl, a murderess! And he to her a murderer! It was a bitter jest of Fate, against two who might have. . . . No! He would leave her. She had friends certainly to whom she could go. All that pretense of not knowing Korna was utter sham, designed to draw him on to death.

He turned away, moved off slowly down the Street of Palaces, that ancient boulevard of Korna that runs into the Place of Kings. From here, Gage's Palace was not far. He went on, very slowly. And once, he turned and looked back. The crumpled shape of the girl was moving, standing erect. He saw her stare after him. And vanish into the street shadows. She was gone.

But he felt no exultation at his victory. Only a sudden feeling of utter weariness. He was very tired. But the pouch under his arm was safe now—which was all that really mattered, certainly.

He moved up the broad smooth steps of the Earth Palace. A spot of light from a photo-cell flickered on his face, ringing a soft bell somewhere back in the great house. He heard slow footsteps presently, and after a time a hastily attired manservant extended his ruffled head through the half-opened door. The man looked at Gray suspiciously.

"What do you want?"

"I've got to see the Ambassador," said Gray slowly. "Now. Take me to him at once. Or bring him down here. It makes no difference."

The servant was hesitating, uncertain. Gray pushed the man back and stepped into a darkened hall. The servant shut the door after him and retreated up the steps of a great stairway leading into the vague darkness of the second floor.

Presently Gray heard slow footsteps descending the stair and a petulant voice demanding:

"But what does the man want, Brentz?"

"I don't know, sir. But I will say he looks very suspicious to me, sir."

A switch clicked. Lights flashed on in the hall. And Gray faced a heavy grey-haired man of about sixty, dressed in a rumpled bath-robe and pajamas. Instinctively Gray knew that this was the Ambassador. A subtle aura of power clung about the man, was reflected in his gestures, in the keen glint of his sharp eyes.

Gray bowed, and handed Gage a certain letter signed by the Seal of the Earth State. The impatient frown on the heavy face changed into quick understanding. He looked at Gray a minute under heavy brows.

"You're the messenger, eh? The man from Earth that I expected?"

Gray nodded. "Yes."

"Come into the library, sir," said Gage; and to the servant: "You may go, Brentz." The man faded away discreetly.

In the library, a great high-ceilinged room with long dark rows of book shelves against the paneled walls, and with a brisk fire burning in the wide grate, Gray told his lengthy story. And when he had finished, he passed the pouch across to the eager hands of the Ambassador. He said dully:

"Do you think we have any sort of chance, sir?"

The Ambassador stared at him out of thoughtful eyes.

"We've got every chance, Gray. With Boma dead—" he did not notice the younger man wince—"with Boma dead and so of course unable to speak against us, I've no doubt but that the Emperor's greed for water will over-

come his desire for the radium. This message you've brought will win for us, Gray."

He stopped speaking suddenly, and stared. Gray had yielded to utter exhaustion at last, crumpled into the warm comfort of a soft chair. The Ambassador smiled, went over and picked him up in capable arms, carried him along the stairway into a great dark bedroom.

"You'll stay here tonight, Gray," the Ambassador said gravely. "Earth owes you more than she'll ever be able to repay."

Gray wanted to protest, but the strange sensation of sleeping in an Ambassador's bed had overcome his resistance. He was dead to the world.

The Ambassador went softly down into the lower hall again, and put in an emergency call for the Secretary of the Red Palace.

* * *

Some hours later, a space-liner bound from New Washington to the Polar Cities of Mars (via Korna), released from bondage by a terse edict from the Red Imperial Palace, lifted from her landing-cradle at the Space Port and rose slowly into the night sky. Her name glowed in luminous colors on her sleek dark hull: "S. L. TRIDENT—TERRESTRIAL."

And on her silent bridge, under the black-and-white pageant of the stars, her captain knocked out a last pipe and spoke reflectively to the night: "Gray must've gotten through. . . . Well, he always was a lucky devil!"

THE END

For the March Issue

In addition to "The Final War" by Carl W. Spohr and "The Eternal World" by Clark Ashton Smith

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By JOHN TAINE

which unfortunately could not be completed in the February issue, will come to a gigantic conclusion in this issue,

And Other Stories In the March, 1932, Wonder Stories on all Newsstands

February 1, 1932

What Is Your Science Knowledge?

Test Yourself by this Questionnaire

1. What was the size of the nucleus of the Comet of 1845? of Donati's Comet? What is the coma of a comet? (Page 1040)
2. What could be the use of an electronic stream? (Page 1042)
3. What are the solar planets outward from Jupiter? (Page 1047)
4. In what two salient conditions, important to explorers, does Mars differ from the earth? (Page 1048)
5. What is the gravitation on Jupiter's surface, relative to that of the earth? What helps to reduce the surface gravitation of Jupiter? (Page 1050)
6. What is Deimos? (Page 1062)
7. What would happen to a body on the earth's surface that was insulated from its gravity? (Page 1018)
8. How is it possible to purify impure air chemically? (Page 1018)
9. What are some of the dangers to explorers in space? (Page 1019)
10. What is the relation between a man's weight on earth and what it would be on the moon? (Page 1023)

The Challenge of the Comet

(Continued from page 1045)

mutual consent both Darrell and Binet paused to watch the effect of the former's work. Likewise the other comet beings halted and gathered round their broken companion, as if puzzled by the strange happening. And then that age-old favorite of laboratory demonstration —cell division—took place before the watchers' very eyes! From the flesh surrounding the gaping holes in the body, the men could see the visible growth of the cell,—the segmentation of the chromatin ribbon, formation of the spindle, and even the centrosomes and asters. Within less than a minute the process had closed up two of the holes, and was rapidly mending the others. A slightly phosphorescent glow revealed these operations clearly even in the gloom.

Simultaneously with Binet's jerk upon Darrell's arm, the comet creatures turned their attention again to the two men. As the latter fled toward the invisible boat, a sudden crackling came from behind. A pale blue bolt of electricity flashed out at them,—and missed. The reporter quivered as he pounded down the sand. Again came the crackling, but this time Binet flung up the rubber floor mat from the plane. The blue flash struck the mat, and the scientist ran on unharmed.

Darrell swerved quickly toward the sea where he caught sight of the little boat, oars at ready, and jumped in. Binet draped the rubber sheet over his back and shoved mightily. The oars bit deep as Darrell flexed his huge shoulder muscles, and the tiny craft swept out into the sunlight that showered down in golden streams from the late afternoon sun. The great black mass of vapor still surged restlessly like some evil entity striving to clutch the fleeing men.

A hundred yards from the island, Binet spoke.

"Stop the boat, Jacques. It is now our turn to attack."

The tiny flickering fingers of electricity that slashed out at them from the dark curtain had ceased. Instead, the gas was slowly increasing in bulk, floating out over the ocean. And in this living peninsula of mist could be seen the dim bulks of the enemy, hovering menacingly there, drifting nearer and nearer.

"We had better," said Darrell, removing his mask with a sigh, "attack pretty damn' quick or our attackin' days'll be done."

"Tut!" Binet made some hurried adjustments on his black box that he had nursed so carefully. Darrell amused himself in the interval by emptying his gun at the creeping pall. At least one of his shots took effect, for there was a sudden splash, a great thrashing of the water, and silence again. The reporter chuckled loudly as he fumbled for a strip of chewing gum.

Binet settled back. "A brief explanation, Jacques. I have here a mechanism calculated to produce and project a ray of my own discovery. The effect of this ray upon the comet gas is to reduce it to its simplest form, hydrogen. Combined with my ray is a heat ray, which will burn the hydrogen as fast as it is formed. The result will be the absolute destruction of everything on the island. We are saved." The little Frenchman waved his hand in a dramatic flourish.

"You lack confidence," said Darrell drily. The mist was now within fifty yards of the boat.

Binet leered playfully, pointed the box at the cloud, and depressed a small lever. There was a sudden puff of colorless flame, and a terrific blast of heat, all out of proportion to the flame, swept out at the two men.

"Voila!" shouted Binet excitedly. He adjusted the shutter-like arrangement on the front and again discharged his weapon toward the island, moving it in a semi-circle, spraying the top of the gas bank. A long streamer of flame flashed horizontally across the mist accompanied by a vast roaring like a thunderclap. A cloud of steam hissed upward. The terrible amounts of energy released tossed the tiny boat about like a chip. To save their faces, the friends hastily donned the gas masks again and tried to hold up the rubber mat as a shield. Darrell tugged viciously at the oars as Binet, grimly intent, kept his ray trained on the island.

The scientist said, "Notice that the oxygen and hydrogen are combining to form water, which in turn is reduced to steam in the intense heat."

"Very—interesting—I'm sure," panted Darrell, sweat rolling off his face, arms badly burned. They were three or four hundred yards out from shore.

Foot by foot, yard by yard, the destroying rays were burning away the gas. It approached the level of the island now. In a vain last stand the comet creatures huddled together and spat out blinding bolts of electricity at the avenging flame. Then, with a series of muffled pops, they burst open, shriveled, and disappeared in dusty ash. The gasoline in the airplane caught fire and exploded, sending wreckage flying into the ocean. The metal ball of the space-car tore asunder with a prolonged, ear-shattering roar. But not until every visible inch had been razed did Binet shut off his machine.

The sudden silence was almost painful. Beneath them the sea surged wildly. Above them a huge pillar of steam was rapidly dissipating. All about the curious purplish twilight of the open sea was closing in. Without a word both men flung themselves to the bottom of the boat, blistered heads pillowed on tired arms, and slept.

Three days later a telegram was handed in at the central offices of the New York *Globe*.

> EVERYTHING HOTSY TOTSY DUE TO HEROISM OF YOURS TRULY AND ABLE ASSISTANCE OF PROFESSOR BINET STOP WHALE OF A STORY BUT DANGEROUS TO RELEASE RIGHT NOW STOP SLIGHT MATTER OF FIVE THOUSAND DOLLARS FOR DEFUNCT AIRPLANE IS HOLDING ME HERE PLEASE FORWARD DAMN YOU
>
> DARRELL.

THE END

The Time Stream

By JOHN TAINE

(Illustration by Paul)

Then someone cried, "The suns are falling toward us!" No sound from the multitude responded. The five rings united into a single dazzling ring.

THE TIME STREAM

What Has Gone Before

A GROUP of science enthusiasts in the year 1906, in San Francisco, try an experiment in throwing themselves back in the stream of time to a previous existence of the human race on another solar system before it came to earth. They find themselves on a desert filled with human bones, and realize that this was the result of a war which had decimated the race. They know that they have been sent back in time to prevent a marriage, which if consummated will wreck the human race. They suddenly return to 1906 and realize that they each have two selves one of which exists in that dim past and the other in the 1906 present

Several of the men, visiting a young woman friend a Cheryl Ainsworth, are again thrown back into the past, and they find themselves on a world called Eos, on which the condemned marriage is about to take place. Eos is a world with five suns and five pillars descending on a great hall which supplies the race with atomic energy. Cheryl is one of the inhabitants of Eos, and it is her marriage that the Councillors of Eos are trying to prevent, for if it's consummated, against the Rule of Reason that prevails in Eos, a beast in human nature will be unleashed, and destroy the race. The Councillors know of a tradition that states that ruin to Eos can be averted if they will "Discover the Secret of the Five Suns," and some of the Councillors often slip into the time stream from Eos to a still previous existence of the race, to find the secret.

The Councillors are now ready to hear the evidence for and against Cheryl's being united to her lover Beckford against all the scientific records of their compatibility.

Dill tells how, in a previous existence of the race on a world far removed from Eos, all of the race except 1400 scientists who had deserted it, were killed scientifically to prevent the race from perishing of hunger. Savadan who had followed Dill into the time stream tells how, after the destruction, the scientists came out of their caves and after many generations prepared to leave that world for another. They left the secret of their discoveries, notably of the nature of gravitation inscribed on a great number of monuments.

Herron who followed Savadan ages later tried to discover the secret of the inscriptions. He wanted to learn how the scientists had crossed space from their own world to Eos. Culman tells how the scientists landed on Eos and transformed the jungle into a paradise, harnessing five suns to give them an inexhaustible store of energy.

Despite the warning contained in these stories, Cheryl refuses to give up her marriage to Beckford.

Then all of them are projected back to earth. They all go to Culman's quarters where on April 15, 1906, Culman writes for them a projection of the future of the race to occur before 1916. His manuscript is sealed in a cylinder to be opened in 1931.

Then most of the time travelers fall suddenly into a cataleptic vigor. Those who remain watch over them.

Now Go on With the Story

NIGHTFALL came, and still the sleepers did not stir. Herron went out to get his dinner; and when he returned Savadan, Ducasse and I did likewise. At nine o'clock we resumed our vigil together. Presently the landlord knocked at the door and asked if there was anything that he could do. We thanked him and said there was nothing dangerous in the condition of the men. They would probably awake quite normal some time tomorrow. The landlord was a quiet, uninquisitive man, with a positive genius for minding his own business.

"If we should go the same way," I added, "will you just cover us up here with the others and leave us quiet? You can use your pass-key and look in on us whenever you have time. Don't call a doctor or make any fuss until Wednesday night at six o'clock. If Mr. Beckford should recover, and come to look for any of us, I suppose it will be all right to let him in. But if Colonel Dill turns up, send him away. If we are still asleep at six o'clock Wednesday evening, you had better notify Dr. Hahn, and have us taken to his Sanitarium."

He agreed, saying he would look in about eight o'clock the next morning.

"Accidents of sight or sound gave them their direction in time," Savadan suggested, "and they followed their clues up stream and home."

"If the relative time rates between this life and Eos are still as they were recently," Ducasse remarked, "we must have missed nearly half a generation of Eos."

"Easily," Herron agreed. "And if the mad lovers have been blessed with a son, he will be full grown by now."

ALTHOUGH this masterful story undoubtedly started slowly, in this final instalment the action rises to a swift and powerful climax. We will come to see the working out of Mr. Taine's theme that time is an endless stream, and that perhaps the events of tomorrow, as well as those of yesterday are mirrored in that stream, for all who can see.

We see, too, the forces in human nature that are behind all war, and we learn how those forces are released and the tremendous damage that they create. Perhaps, as Mr. Taine suggests, the human race once enjoyed a golden age, and that war sent it plunging back to the level of the brute. According to him, we have made a difficult climb again to our present scientific age. Will we now be plunged into another disastrous war, that will again fling us back to savagery? His story gives one answer to this engrossing question.

"Well," I said, guessing the thought behind Herron's neutral remark, "Culman has been back long enough to have done something important with the secret of the Five Suns. If he has completely unraveled it, Eos will have little to fear from the mad lovers' offspring, even if he should prove to be the long prophesied 'beast.'"

"You can't tell," said Ducasse. "Cheryl and her lover were planning to teach their new 'truth' to all Eos. So, if half a generation has elapsed, as seems only probable, we may be greeted on our return by a whole menagerie of strange new 'beasts.' From what I have seen of Cheryl's discovery as reflected in this shadow life, I imagine it will have an irresistible attraction for the very young and the very unwise." He smiled his dry, philosophic smile.

"Cheryl's malady seldom attacks men or women past middle age. So we may expect to find Eos divided into two stubborn factions: the young and enthusiastic who are ripe for love; and the old who either never had it, or who have recovered. You see, the middle-aged people whom we knew when we left Eos will now be getting along toward old age; while the babies and the very young will just have reached their maturity.

"This, of course, is assuming that the time scale of Eos is as we believe it to be, compared to that here. And I see no reason to doubt this. On our previous absences from this shadow life, we were gone for at most a second of their time here; while actually, during that 'second,' we were in Eos for a very considerable span of real time. I am beginning to doubt whether we shall ever get back again. We are high and dry on the bank of the

stream, and none of us knows his way down to the water."

"You have forgotten one thing, Ducasse," Savadan broke in. "The mad lovers may have made converts shortly after we left. If they did, we shall find a plentiful crop of tares waiting for the scythe of time."

"I did not forget the wild oats of love, as they say here," Ducasse grinned. "Only in Eos our legends use a different metaphor. They say, instead of 'sowing oats,' much more expressively, 'unleashing the beast.'"

"It would be worth a lot to know what the old devil Dill is doing now," I remarked. "He remembered every detail of his infernal scheme on the Desert."

"Don't worry about him," Herron said, laughing. "Culman will take care of any undue courage that Dill may show. It is a good thing Culman is back. The two are hereditary and natural enemies if ever there were such in this muddy, bloodstained stream of time."

We got up, and stood looking out of the low windows at the moving lights of the Bay and the dim, starlit hills beyond. Far below we could see the electric cars crawling across California Street like bright glow-worms. We became idly interested in watching them pass through our field of vision, and began to keep count.

"There's another due on Third, in a second," Herron announced. "There hasn't been one for almost five minutes."

"I'll bet you the breakfast for the crowd," Ducasse said, "that another doesn't cross within the next two minutes."

"It's a go." Herron took out his watch. "Now keep your eyes on the corner down there by the cigar store. I feel a car coming."

As he spoke, the headlight of a car flashed into view. The car stopped at the corner.

"I win," said Herron.

"No, you don't," Ducasse objected anxiously. "You can't, because I have only thirty-five cents in my pocket. The car has to cross California Street within the two minutes."

"Then I have thirty seconds left in which to earn four large, expensive breakfasts. Smith will lend you ten dollars." Herron laughed the glad laugh of the victor. "Ah, there she goes!"

The headlight began to move, and we saw the first window flash into sight. Then the trolley wheel struck a splice in the overhead wire, and a dazzling spark glittered for an instant against the darkness.

"Fall backward!" Savadan cried.

That was all I heard. But I had a confused memory of seizing Herron around the waist just as he was about to pitch through the low window, and bringing him heavily down with me to the floor.

I opened my eyes in drowsy wonder. Before me, high up, blazed the great ball of the Undying Fire. I was lying flat on my back, heavily covered. Turning my head languidly, I saw Ducasse and Savadan lying together on my right, and Herron alone on my left. All were smothered beneath piles of warm coverings. On gazing up to see whether the five suns were still as I have always known them, I became conscious that Culman was staring down into my eyes. At first I did not comprehend the nature of his changed appearance. Then with a shock I realized that his hair and beard were as white as snow.

We had returned to Eos.

CHAPTER XXII

The First Stone

ATTEMPTING to sit up, I immediately fell back exhausted upon my bench. The other sleepers stirred, but made no effort to rise.

"Lie still a while," Culman advised. "Your strength will soon return. We have fed you."

His voice sounded older and kinder than I remembered. Again I glanced at this aged man bending over me, and lay back wondering. When last I had seen him, he was in the full vigor of his prime. Now he was near the end of his life. Another, somewhat younger man, joined Culman, and with him stood looking silently down on us.

"Have they returned?" the newcomer asked at length.

"Just now," Culman answered. "They are still dazed. Let them watch the Undying Fire for a while."

"Half a generation in the time stream," the other went on reflectively, "perhaps even in the shadow life beyond Eos, and still they live. But we ourselves returned with whole minds to Eos after an absence of almost a fifth of a generation. We have preserved their bodies, but their minds were beyond our reach. Well, we shall soon know."

He bent over me, and looked long and searchingly into my eyes. Studying his grave, calm features, I had an elusive feeling that somewhere I had known this quiet, reserved looking man as my best friend. This man's face was the living record of a great sorrow. But the man I had known was young and vigorous, fond of a good jest; this white-haired sage was long past his prime, and sad with an impersonal grief. Then the knowledge came to me in a flash

"Sylvester!" I groaned, for the sorrow in his face wrenched my heart as with a physical pain, "Sylvester . . . . What has aged you so?"

"Lie quiet," he said. "You shall know all soon enough. You are still young; I am old. Your journeyings back and forth in the stream of time have not worn down your youth. For you have returned to the real time which for half a generation you have forgotten. Look up at your great ball of fire. You used to marvel at the undying wonder of it."

Leaving me, he passed on to minister to Ducasse. My eyes, resting on the incandescent ball, drew strength and comfort from my old plaything. Looking farther up beyond the top of the ball to the five suns, I was puzzled by some unfamiliarity of their aspect which had escaped my first glance, and which now I tried vainly to analyze.

Were they slightly dimmer than I remembered them?

The green sun, the Star of Hope, at any rate was as bright as ever. And all were in the same relative positions as when I left Eos. Yet their appearance seemed other than I remembered. Exhausted by the unaccustomed exercise of thinking, I fell into an uneasy doze.

On awakening I analyzed the change at a glance. The suns were indeed as they had always been. It was the roof of the Chamber of the Undying Fire which was altered. The great circular skylight, formerly open to the heavens, was now traversed by a delicate weblike structure and all but completely covered by a transparent roof, which I guessed to be of the same material as the cylindrical ray-screen still intact before my eyes. On this new roof the selective ray lenses and all the complex machinery of transmission had been reassembled directly above the incandescent sphere, the lenses alone projecting through the new roof screen into the path of the dangerous radiations.

This roof was not yet completed. One circular opening still remained unscreened. At the great height above me which it was, this last window on the heavens looked no bigger than the disc of that green sun which, from immemorial ages, our people have called the Star of Hope. With a drowsy wonder I reflected that the last unfiltered rays of the great ball must stream up through the small circular skylight directly to the green sun. Then a second thought showed me that this apparent design was merely a coincidence. For the divergent rays issuing from so small an opening, must ultimately impinge on all five suns, owing to the inevitable broadening spread of the pencil in its traversing of free space.

Why, I wondered, had that last window been left? Was it merely because the workers had not yet had time to finish their vast task of completely roofing over the Undying Fire; or was there a purpose in the omission?

It must have taken prodigious labor to build that massive horizontal screen, to say nothing of the painstaking readjustment of all the heavy transmitting machinery and selective lenses. For the roof, it was evident, must be many times as thick as the cylindrical ray filter: the machines which it had to support in perfect immobility were massive and heavy. When would the workers return and close the last opening?

EVEN as I asked myself the question, I saw a few minute black dots, no bigger than grains of sand, moving toward the small circular skylight. I realized that those black grains were men. After them moved larger black grains, which I rightly imagined must be lifting machines.

The smaller grains crawled around the last opening, arranging themselves in a circle about its edge, and their lifting machines crawled after them, coming to rest finally in a wider circle. Then the larger grains very slowly sent out fine, long threadlike rods. These I guessed to be massive girders of the same resistant metal as that of which the platform of the Undying Fire and the walls of my laboratory were constructed.

The thin rods laced themselves over the opening in a fine, weblike network; and the smaller dots around the circle drew back. The larger also retreated, forming a crescent about one side of the opening. Then once more they advanced, all but imperceptibly, so slow was their motion, as if laboring to push something massive before them. I watched the Star of Hope. As the lifting machines advanced, a crescent of the green sun dimmed. The decrease in brilliance was so slight that only a trained eye could detect it; nevertheless it was real. The dimmed crescent grew, until all the disc of the last sun had lost one faint glory of its accustomed light. The black grains, small and large, crept away, disappearing at last among the shadowy towers of the transmitting machinery. Their task was accomplished: the five suns were cut off from all radiations of the Undying Fire.

"Do you think you can walk yet?" Culman asked, bending over me. "I would not hurry you to rise; but time presses, and Eos must soon meet its destiny."

Something in his voice awed me. "How soon?" I asked, struggling to my feet.

"Before any man in Eos sleeps again." He pointed up to the newly completed roof. "My work is finished. Sylvester too is ready for the end. He has done the work of ten generations in half of one man's lifetime. Come, and I will show you why."

The others were standing up, still dazed after their long sleep. But we felt no physical weakness or vertigo, for we had been well nourished and regularly exercised all through our semi-death. Only our minds were yet numb and unaccustomed to the thoughts of Eos.

"Have the mad lovers a son?" Savadan asked Sylvester.

"No," he answered. "That fear of the Council's was not verified."

"Then why this tampering with the Undying Fire?" Savadan sternly demanded. "Culman, have you acted in haste? It comes back to me that you once made a terrible threat. It was while we stood looking down from the mountain of bones above the Desert of the Dawn. Has hatred of the beast made you rash?"

"You shall see with your own eyes in a moment, and hear with your own ears," Culman replied sadly. "I have done what our ancestors counseled. For I have discovered and used the secret of the suns. Remember, Savadan, you saw only the lair of the beast after it was dead. I once performed an experiment—for Cheryl. Then it was that I saw the living beast. What I have done is the better thing for Eos."

"But," Herron objected, "if the mad lovers have no son, surely our former interpretations of the legends must be revised? For did not the Council assent, after hearing our testimonies, that 'the beast' of the legends is a symbol for the offspring of unscientific marriages consummated in defiance of the law of reason?"

"The mad lovers have no son. A daughter was born to them. The disciples of love call her the Singing Flame."

The unexpectedness of the revelation gave us a cold shock. We, with the rest of the Council, had always tacitly anticipated a son from the union of Cheryl and her lover. A daughter necessitated a complete readjustment of our mental program. To oppose a man was the work of men; to fight a woman seemed a task for cowards.

"And she?"—Ducasse began.

"Is her mother a thousand times intensified. She is a young woman now in all the radiant vigor and beauty of her first full maturity. And she has roused to fury the beast that her parents awoke. Where the Council and the law of reason have one follower, she and her unleashed passion have hundreds. She is a

white fire, and the young rush to her to be destroyed."

"Cheryl is dead, then?" I asked.

"She still lives," Culman replied. "We are on our way to speak with her. She is in your laboratory—with another, who will not speak."

"And her lover?"

"He too is living. Dill and he are out by the great tree, plotting. They talk in whispers, but their words travel far."

"What is their plot?" Savadan asked anxiously.

"To overthrow the Council and set an Assembly with absolute power over the lives of those who still adhere to the law of reason."

"EOS is divided then?"

"Into two factions. One would abolish the law of reason and destroy science and all its teachings. They strive to replace the sane marriage of science by free and lascivious mating as sung by the Singing Flame. It is Cheryl's unsung lovesong made manifest. The other faction would impose the law of our fathers upon all. Each seeks to force its will and its creed upon the other. The ancient law of freedom that was the glory and happiness of Eos is become a tradition which none reverence. It is forgotten. Every man would set himself up a tyrant over his neighbor, and every woman a despot over her sister."

"In half a generation we have fallen so low as this," Savadan mused. "Our Golden Age is rust. Culman, you have done the right thing. To use the secret and all that it implies is better than to let Eos fester in tyranny and breed wars upon itself from its own corruption."

"Wait," Culman answered. "You have not yet seen the thing which impelled me to issue my last instruction—that to complete the roof, and forever screen our five suns from the sustaining radiations of the Undying Fire. For a quarter of a generation I have hoped against hoping, and left one small window open to the suns. Now it is closed, and the story all but ended."

"When did you decide?" Ducasse asked.

"Just before you sleepers awoke. I think you must have looked back unconsciously in the stream of ages, and read from afar my decision on the darkening waters. Homesickness for Eos drew you here again, even to the end of all our happiness. Soon all the waters will be black."

"Is this the end, then?"

"What we have done cannot be undone. I trust it may end before Dill's work begins."

"Have the maddened people built towers under his direction?" I asked.

"No. There is no need for them here. Our knowledge of electricity is so far advanced beyond what Dill could command on the Desert that towers are unnecessary."

"I shall kill him," I said.

"And make a beast of yourself?" Culman replied sadly. "No, you will not do that. You are not yet the savage that he is. Let two or three of us keep the law of freedom to the end, leaving all in peace or misery to work out their own natures."

"But have not you already broken the law," Savadan doubted, "in using the secret of the suns?"

"It is a question," Culman admitted. "I have not trusted to my own judgment. I have followed the directions of our ancestors, being guided by them to a justice which is beyond my reason. To keep the law and to break it seem equally terrible. Perhaps there is no right in this, and we may merely be living the inevitable consequences of laws beyond us.

"Nature after all may be the beast, and we her helpless prey. In following the dictates of our traditions I have but acted as a trustee for the civilization of our ancestors. It was they who devised all our happiness, and it is for them to say how we shall guard their labor."

"There is no freedom," Savadan exclaimed bitterly. "This happiness which we have called our own is the gift of the dead, who now stretch out cruel hands to withdraw it."

"Slaves of the past, or of future—which you will. It is all one. We are what time has made us."

We had now passed from the Chamber of the Undying Fire and into the main laboratory of life and character analysis which we four sleepers had left half a generation ago. It seemed but a moment since Cheryl had joined us by the great ball, and asked Culman to perform an experiment for her. I could not realize that she, the brown-eyed, black-haired girl must now be approaching old age. But so she must.

"We left her alone with it in the rotunda," Sylvester said to Culman. "Let us see if she is still there."

Not a worker was to be seen anywhere. The vast laboratory, once abustle with busy men and women, was deserted. Eos had forgotten the beast. Only the immemorial legend in the metal of the walls still reiterated its admonitions to remember. I found myself wondering what had happened to the old assistant who had railed so bitterly in the long ago when I told him of Cheryl's impetuous wooing. Where was he now? Dead, probably; and whether by the kind gentleness of old age, or by the rash violence of his own hand, now mattered little. He was beyond it all, and therefore happy.

Presently we entered the rotunda where so often we had sat in advisory session with the Council. A straight, white-haired woman was standing by a long table, looking fixedly down at something covered with scarlet blossoms. Although our footfalls echoed noisily through the emptiness, she gave no sign that she noticed our approach. Culman and Sylvester held back, motioning us to go on alone.

At last she turned her head and looked straight into my eyes. Her own were deep brown, and strangely familiar.

"You . . ." she said. "Still the cloud upon your face. Well, you have reason. You were right. How young you are. Oh, that I too had slept through it all!"

"Cheryl!" Ducasse exclaimed. "Cheryl . . . What has changed you so?"

"Love," she said bitterly, "and this." She pointed to the long mound of scarlet blossoms on the table.

"Is love then so cruel?" Herron asked.

"Not love! No, love is gentle. It is the mad hatefulness of those who hate love and despise it that makes it seem cruel."

"LOVE is still kind, you say. What then has made you white, and old and bitter?" I asked. "Surely those scarlet flowers have not poisoned your sweetness? Once, I remember, one lay upon the blackness of your

hair. Is it for this that you grieve? It was under the great tree."

"I remember," she said. A look of pain contracted her brow for a moment, but it passed. "And when the blossom fell to the ground, I swept it aside. Oh, if I had swept my love away instead!"

"Your lover has been faithless to you?" Herron asked.

"Faithless? You do not know what love is!" Her eyes flashed on him in scorn. "How can love lose faith? It is for ever; it is eternal."

"Why then," I said, "do these scarlet flowers make you sad?"

"It is not they. It is what lies under them—all the red hatefulness of those who hate love."

Tenderly she brushed aside the blossoms in the center of the mound, disclosing the fair white body of a young man rigid in death. The flowers covered his face, and she did not lift them. Culman and Sylvester joined us. Sylvester went to the table, and one by one lifted the small heap of scarlet blossoms from the still, white face. A great bruise, broken by the red lightning of an angry gash, disfigured the fairness of the forehead

"The first stone," Culman said, pointing to the gash. "And the first death by violence in all Eos. Who hurled the stone that killed him we do not know. Some of the Councillors suspect it was the act of one of our enemies to inflame the people against us."

"Some fanatic of reason threw it!" Cheryl flashed.

"Or of love," Culman replied. "What does it matter? The young man has been killed by the beast which was unleashed half a generation ago."

"It was this that decided you to use the secret?" Savadan asked.

"Yes. There shall not be a second stone."

"You are right. The remedy of our ancestors is the better thing."

"What do you mean?" Cheryl cried, her face white with fear.

"What I say. Before nature has taken all her glut of this fair body the secret of the suns will be revealed."

"Then Eos is to be saved from ruin?"

"From brutehood, yes."

"And we shall have the law of love?"

"For all I know."

"Then," she cried, "our legends have told the truth. At last I believe."

"Who was this young man?" I asked.

The quick tears started to the eyes of this proud, white-haired woman who once had been Cheryl, young, and scornful of all tears.

"The preserver of my daughter's life," she said. "A little while ago she was singing to the people out there by the great tree."

"Ah, yes," Ducasse said. "She is called the Singing Flame, is she not?"

"The Singing Flame, my daughter," Cheryl assented proudly. "A white flame of love, and a voice to fire the coldest into passion. And this young man," she went on softly, the tears again welling to her eyes, "gave his life for her. Could any man show greater love than this?"

"Was he her lover?" Ducasse asked.

"No. He did not know her. And if he had, my daughter would never have loved him. For he was a slave to what you slaves," she flashed her scornful eyes over the toil-bowed frame of Culman and Sylvester, "you slaves would call reason."

"And who killed him?"

"Another slave of reason. While my daughter was singing her flaming songs of love out there by the scarlet tree, the followers of reason stood apart with their black looks. Then some fanatic among them hurled a jagged stone at my daughter where she sang. This young man saw the act, and leapt up to cover my daughter's body with his own. He was barely in time. The stone struck him full in the forehead, and he was killed."

"Still you have not told me who he was," I insisted. "That he saved your daughter seems to be all for which you care. Was his own young life worth nothing more than this violent end?"

"We of the Council knew him well, and honored him," Culman said. He mentioned the young man's name. "He too had a great love in his life. But it was for flowers and all humble, creeping things. They and he understood one another's fancies. Though young when he died he was a great naturalist. And he was true to Eos and all its laws."

I stood turning the young man's name over and over in my mind. Somehow it was dimly familiar, and presently I remembered; for I myself had analyzed the premarriage records of his parents.

"Cheryl," I said, "do not you know who this young man was?"

She shook her head.

"Cast your mind back to the time when you were yet a maid, and longed for a young son of your own. This dead man is the son you wished was yours. He is that small lover of reptiles who ran from us out there by the great tree. And this is his end."

As we left her she started to put back the scarlet blossoms over his face and ruined forehead.

CHAPTER XXIII

Thunder of War

WE WERE about to return to the Chamber of the Undying Fire where Culman and Sylvester said they had much to show us, when a far shouting surged through the Council Chambers, like the distant thundering of surf upon a sandy beach.

"Ah, she is going to sing again," Sylvester said. "Would you care to hear her song?"

"The Singing Flame?" we asked.

"Yes, Cheryl's daughter in love," Culman answered. "You have plenty of time to hear her sing if you care to listen. Sylvester's work is finished, all but the last touch. The Suns will give us warning when to act. Will you go out? She usually sings in the shadow of the great tree when she is in Upper Eos."

Expressing our curiosity to hear the song that had completed the work of the mad lovers and fanned the first spark of their unreason to a flame beyond control, we passed out of the Council Chambers on to the Plain of the Five Pillars. As we emerged the shouting surged up again, and we saw that the Plain was black, as far as the eye could reach, with a dense multitude of men and women. For a few moments we stood by the main gate of the Chambers, looking down on the crowds swarming over the plain, and out toward the scarlet tree where presently the Flame would sing.

"Wherever she goes it is like this," Culman said. "All

classes, slaves of love and believers in reason alike, swarm to hear her sing. And always the listeners are divided into two factions which neither mingle nor speak to one another, except to hurl back and forth hot epithets of scorn. Half a generation ago the parents of this woman sowed the seeds of dissension broadcast throughout all Eos. For with their message of a new love went strife. They taught their truth, Cheryl and her lover, to all who would receive it.

"At first the glowing pioneers of untrammeled love were received everywhere with jests and laughter. The law of reason was not overthrown at a word of passion. But presently one young man or woman began to listen seriously, then another, and the seed took root. Forgotten instincts were dimly remembered, sleeping lusts aroused, and the new liberty seemed a pleasant and desirable thing. Why appeal to the Council for the sanction to sate nature's clamant hunger? Why not, like the elemental electricities, rush to a union with the nearest, and, for the moment, the most attractive? The seed sprouted. Soon Eos was green with a new crop of tares which now, with its harvest of red hatreds, is ripe for the scythe.

"Cast your eyes over the multitude. There is not one great body of men and women met there to listen to a song. There are two. That broad avenue between the multitude of lovers and the lesser mass of reasoners will be crossed by neither, unless it be, at this last song, to fall upon each other with blows. Neither is less to blame than the other. Each is a horde of tyrants seeking to bind its way of life upon others who will have none of it. Thus passes the glory of Eos."

We made no reply, stunned by the rapidity of the degradation. Half a generation had transformed our happy, equable race into a horde of passion ridden fanatics.

"Will her voice carry this far?" Ducasse asked. "Hadn't we better go nearer? We can get quite close to the tree if we walk down the avenue between the two crowds."

"Her song will reach us," Culman replied. "It is clear, and full and penetrating. Later, if you wish, and if there is time, we can go nearer."

Once more the multitude shouted, and this time there was a snarl beneath the thunder.

"She is going to sing," Sylvester said. "Listen."

A deathlike hush fell upon the people, and we strained our ears to catch the first note of the song. But no sound reached us. Still the multitude kept an intense silence, broken only by occasional whispers from one man to his neighbor. Some message seemed to be diffusing slowly through the crowd; but where its source was, we could not guess. The silence grew strangely ominous.

"What is this?" Culman muttered apprehensively. "Has Dill begun his work? Sylvester, can you hasten your process should there be need?"

"No," he replied, as we left the Chamber steps and hurried down the broad avenue between the silent factions. "I can only utilize the energy which will be released by the suns when your work takes effect."

Culman glanced anxiously at the suns. "No sign of change yet," he muttered. "What if we have miscalculated the time, and the end comes too late?"

"If Dill succeeds before we do, it will not be for long," Sylvester reassured him. "Nothing can now stop our work from rounding out its cycle. It must sweep on to the appointed end."

"Yes," Culman groaned, "but the young men and women and the children? If Dill—"

"If Dill starts his war," I said, "I shall certainly put an end to him. I do not know what you and Sylvester have prepared, nor do I guess the secret of the suns. But this I swear: not one helpless being in Eos shall become a victim to Dill's cowardice."

WE WERE fast approaching the great tree, and yet we heard no sound. On either side of the broad avenue the hostile multitudes stood grimly silent, as if waiting for some prearranged signal to leap into action. Presently Ducasse gave an exclamation of surprise.

"Where are all the children? And the youths and young girls? And the old? All these people waiting here are in their prime."

"With Palgrave in Lower Eos," Culman replied. "The last of the children were hurried there for safety—and for another reason—when the young man was killed. The rest—the younger men and women and the old—went voluntarily at our suggestion. You may learn why when you have heard the song of the Flame. But as it is, all these men and women whom you see are here of their own choice. And so everywhere in Upper Eos where multitudes like this are met in sullen strife. Palgrave should be back presently."

Lower Eos, I may state, was the name commonly used to designate that part of Eos which lay diametrically beneath Upper Eos, the latter being the region from which the five suns were visible. It was quite possible, of course, by our perfect system of travel, to journey from Upper Eos to Lower, and return, within the normal interval between two sleeps. The entire population might easily have been transported the vast distance in one ordinary working period.

"Palgrave should be back by now," Sylvester said anxiously.

"He will return at the earliest possible moment," Culman assured him. "Palgrave is a Councillor of Eos, not a member of the Assembly in the Dark Place."

"I did not mean that," Sylvester said hastily. "Palgrave's courage has always been open for any one to see. I feared our enemies might have trapped him."

"Unlikely," Culman asserted with conviction. "He is too shrewd for a slow-witted, war-sodden savage like Dill. But you forget that it takes time to teach the very young the secret of the Undying Fire which they must carry with them. There were a full two thousand additional of the children whom the Council decided at the last moment to instruct."

We were now within easy hearing distance of the tree. A thin voice quavered on the air, shrilling over the heads of the scowling listeners. It was the voice of a very old man. Evidently the speaker was drawing his oration to a close.

"And so, people of Eos," he was saying, "you must decide, and do it now. This is the appointed time. Freedom is ripe, and yours for the gathering. To pluck and enjoy your deserved liberties you have but to stretch forth a hand. At this moment throughout all Upper Eos, assemblies similar to this are considering the identical questions which I have just laid before you. Shall we longer submit to the tyrannical meddlings of the Council and its followers?"

His feeble old voice rose almost to a scream. "Too

long have those who miscall themselves the servants of science and reason scoffed at our freedom! Too long, I say, have they fettered your lives and shackled your love. Shall we, assembled here before the very stronghold of those that hate us, lack courage? What will the fearless men and women who at this moment are forever rejecting the teachings and leadership of the Council say of us if we fail in our obvious duty? Have not we all, for half a generation, wearied of the Council? How long shall we endure its persecutions? We are sick of the Council and all its absolute sciences.

"In the name of our fathers, and in the spirit of their freedom, I say strike! and strike now! Resistance on the part of our oppressors will but hasten their death. So great is our strength that their utmost against us is but the feeble blow of a sick child. With this old hand of mine, shaken by the years and gnarled by labor though it be"—he held up one white hand, still as fat and innocent of toil as ever—"with this trembling hand alone I can sweep all of our haters into everlasting oblivion! Strike, I say, strike while the time is ours!"

Not a single voice responded to the challenge. Both factions seemed stricken dumb by the aged speaker's audacious brutality. It was an extreme of violence for which they were not yet prepared; and the speaker, quick to realize his blunder, retracted the urgency of his appeal.

"But let the man whom nature has elected to be your first leader in the new freedom speak. Let the fire of his unequaled eloquence kindle my dead words to glowing deeds; and when he has spoken, the Flame, his daughter, will sing to you of liberty!"

At this announcement one faction sent up a shout of joy, the other a snarl of rage. Edging nearer to the tree we saw the ancient protagonist of war and brutality yielding his place to a younger man. The aged speaker, having made way for his successor, passed in front of us and disappeared into the crowd, but not before he had included Sylvester and Culman in one swift, sneering glance of contempt and evil cunning.

"Eos has need of my counsel," he quavered, and vanished among his sycophants.

"Who is that old man?" I asked Culman. "His face looks familiar."

"Dill. His hatred of reason and the hope of war have kept him alive and strong. He should have been dead a quarter of a generation ago. And this new man is the one whom you knew as Cheryl's lover. He speaks well, for he is cursed with the fluent eloquence of a loose reasoner."

IT WAS indeed Beckford. He had aged more than had Cheryl; in fact he might have been mistaken anywhere for an old man. But he was still erect and physically as handsome as ever.

In a voice that carried to the Council Chambers he at once began haranguing the crowd. He spoke long and well—if that can be called good oratory which appeals to the basest of our emotions, inflames our passions, and makes cold, sure reason seem an idle mockery. His own adherents frequently punctuated his specious harangue with vociferous applause, which his more reasonable opponents tried in vain to shout down.

He had not been speaking long before Cheryl joined him and stood quietly at his side, hanging breathlessly on his illogical periods and flamboyant gestures. They still were a personable couple, erect, beautiful, and not without dignity even in their last madness. Their heads might still have lured a painter, although the hair of both was white, and passion had seared their faces with many scars.

The speaker reviewed the history of Eos and its two chief glories—the law of reason and the law of freedom. By adroit misuse of reason he convinced his partisans that reason was the red spirit of madness and freedom the breath of tyranny. Then, in a peroration of magnificent power and brilliance, appealing to the two laws of their forefathers, he urged his hearers to perpetuate these twin glories of their ancestors by overthrowing both.

"Abolish the Council!" he shouted. "Away with the cramping restraints of a despotic, impotent and outworn science! Choose from among yourselves an Assembly with power to compel assent to the new truth which is the only freedom, and I will lead you into fair meadows of love and perpetual happiness. And now my daughter, the first living pledge of the new liberty to be born in Eos, will sing to you in colors of fire what I have but haltingly stammered in cold words."

At this announcement his faction roared like hungry beasts. The song was the food for which they famished. Beckford and Cheryl made way for a young woman whose face, for the moment, was hidden from me. I heard Ducasse and Herron exclaim in astonishment, and Savadan sharply draw in his breath. Then I saw, and stood amazed.

This woman was Cheryl as she had shone in all the wonder and brilliance of her beauty half a generation ago, but with a something ethereal of her own that Cheryl had lacked. This woman was the incarnation of clean, beautiful desire. Flesh and blood, mind and spirit, could not resist her. There was nothing of the animal in that passionate face. Yet it filled me with an indefinable dread. I glanced at the adherents of the Council. Their faces were abashed and their eyes sought the ground. Whatever this woman might sing, whatever might be the madness of her love song, she herself was pure and undefilable as fire. There was strength in the sweetness of her face.

Gazing, in the hush which fell upon the multitude, at her firm, kind mouth, I suffered all the pangs of death. For I felt that we, the Council, had erred in our decision. The message that such lips as those might deliver could never rob Eos of its true Golden Age and hurl our happy people back to brutehood. There must be truth in Cheryl's love greater than all the truths of science. And this supreme truth, unless Culman were not mistaken, we were about to blot from the universe.

He stepped quickly to her side and whispered to her. With a graceful movement she raised her hand to still the murmurs of the people, and then, in a voice of ineffable sweetness, spoke.

"Councillor Culman would speak briefly to you before I sing. Listen; I ask it."

The multitude obeyed patiently.

"People of Eos," Culman began, "I have but little to say. Not long since a young man died by violence on this very spot. His death is evidence that the legendary beast of our traditions is aroused, and among us. By those same dim histories of our race, ruin now threatens

Eos. But the traditions also tell us how the imminent ruin may be averted:

" 'When ruin threatens Eos, discover the secret of the Five Suns which shine above the Plain of the Five Pillars. Use the secret; it is the better thing.'

"This is the Plain of the Five Pillars: look up; they yet rest upon our heavens, and our Five Suns, like globes of the undying fire, rest upon the pillars. Look up, and once more remark the mysterious beauty of our suns: the green Star of Hope, the golden sun, and the pure white, the amethyst and the red, still shine upon the summits of those pillars of light as for ages they have shone. This, I repeat, is the Plain of the Five Pillars to which our legends refer; and those beautiful streamers of soft light are the pillars.

"Now answer me, men and women of both factions. Are you assembled in this place by your own free wills?"

The impatience of their answering roar left no doubt of their freedom.

"And answer me this: Did not the Council, a little while ago, again warn all who would have no part in strife and the shedding of blood, to leave Upper Eos and remain in Lower Eos until all our differences be settled? And did not you freely consent that all your children and the very old should go with those lovers of peace to Lower Eos?"

Again the shout confirmed his words.

"Then I have but one thing more to say. Dill, I would speak with you before these free people. Dill! Come forward."

Cries for Dill rippled down the avenue between the opposing factions, but he was not forthcoming. Then, from the outskirts of the multitude, a message traveled from mouth to mouth down to the scarlet tree.

"He entered the Council Chambers while our leader was speaking," the message ran.

"So be it," Culman replied. "He has gone, I have no doubt, to prepare our destruction. It is in his power to slay our Council and all its adherents in swift and sudden war. This is the ruin against which our legends warn us. War: that is the life of the Beast. But this ruin shall be averted. For I have discovered the secret of the Five Suns, and I have used it. Dill's preparations are vain. Before any man again sleeps in Eos, the secret of the Suns will be revealed."

CHAPTER XXIV

The Thunder Breaks

THE silence that deepened through the multitude was as the stillness of death. None at once knew whether Culman's revelation was a threat or a promise. Then the opponents of the Council suddenly burst into a shout of joy: to them it was the clear news of victory, the longed-for message that the prophecies of the traditions were baseless dreams, and the happy assurance that henceforth love should walk where it willed, free and untrammeled.

The Singing Flame again raised her hand, and the clamor died instantly. A scarlet blossom fluttered down from the tree, lit for a moment on her hair, and fell at her feet. With a smile she bent over and picked up the flower, kissed it, and gave it to her mother.

"I will sing our song of triumph," she said, and for a moment paused, gathering her fire.

"Come," said Culman. "We must gain the Council Chambers before the song ends. There is no time to lose."

We hurried down the long avenue away from the scarlet tree. In an instant the first full notes of that flaming song overtook and transfixed us like shafts of keen light. Involuntarily we who had just returned to Eos, stopped. Then Culman and Sylvester, each seizing two of us by the arms, hurried us along toward the Council Chambers.

"If we listen we shall be slain before our work is done," Sylvester said; "and on our hands will be the blood of all the innocents in Eos. Faster!"

We would have stayed, but our companions urged us forward against our inclinations. The song played upon our bodies like a sweet fire; it entered our minds and lulled them, and it rekindled in the dark recesses of our natures white flames which ages ago we fondly imagined we had quenched forever. The words went beyond reason, beyond all things of the mind; and the melody soared on beyond the words. We had no names for the longings which that mad music fired into new life, nor for the forgotten pangs which it recalled. Only we knew that the thing whereof the music told was the one happiness which gives life all its meaning, the one infinitely desirable end of all living.

Then suddenly the song leaped after us in a fiercer, more exultant flame: it was a withering blast consuming the hatred of all those who hate love.

Writhing in the torments of that blast I became mad with a hate of all those who slur love in the name of reason; and my eyes hungrily searched the ground before our hurrying feet. For what was I seeking? I saw it! I stooped to reach the jagged stone in my path: I would dash out the life of any who sought to restrain love. My hand closed upon the missile, but I was jerked erect, and it fell from my grasp. In that instant the raging torment ceased. The song was ended; we stood upon the steps of the Council Chambers.

"It maddened you," Culman said, without reproach. "Look back. Do you wonder that they have forsaken reason to fall upon each other like beasts?"

The opposing factions, not stopping to pick up stones, met in the first shock and clash of primitive battle. They had but one weapon—their hands; and the thudding of flesh and bone upon flesh and bone rose with a sickening rhythm above the tumult of yells and hatred.

Then, as we watched in horror this ending of our happiness, a change passed over the mellow light upon the plain. It did not darken; rather its quality was altered. A shriek pierced the clamor, and it died.

"The Suns!"

That shrill fear was the last song of the Singing Flame. A white desert of faces stared up at the five Suns. The five pillars of light which Eos for ages had watched from this plain, no longer rested upon the heavens. Their severed bases were rushing toward the suns, each pillar of colored light seeming to snap like a stretched band back to its sun. In the twinkling of an eye all five pillars had been reabsorbed in their respective suns, and in the instant of their vanishing, four of the suns changed color. The amethyst sun, the red, the green and the golden were instantaneously transformed into dazzling white discs of intolerable brilliance; and the luminosity of the fifth sun, which always had been white, increased a thousandfold.

An inarticulate sound of despair went up from the

multitude, and expired in a sudden, ominous hush. All were waiting, for what they did not know. The issue between the factions was obliterated. No longer were there friends and enemies; fear had made them one.

"The suns are separating!" cried one whose eyes were keener than his fellows'. The crowd took up the cry: "They are spreading, they are spreading!"

The apparent separation of half a finger breadth between neighboring suns was real. The suns were indeed spreading; but I doubt whether the untrained eyes of the multitude actually detected the small spread.

"The energy should be released in a moment," Culman said. "If it is not, I have failed."

BEFORE he had ceased speaking a clamor of dismay rose from the people.

"The suns have burst!" they shouted, and started to flee in all directions. Then, helpless in their packed masses, they resigned themselves to silent endurance.

Overhead the spectacle was one to inspire any man with awe and apprehension. Each of the five suns had ejected a solid ring of intense light. These rings now moved independently of their suns, being completely severed, and all appeared to recede in space. The spread of the suns now became noticeable even to untrained eyes. Each was fully a hand's breadth farther away from its neighbor than when the light first changed. The cry went up again:

"The suns are spreading! They are setting!"

Then some man in the crowd grasped the true meaning of the apparent separation. The suns seemed to diverge; in reality their apparent distances apart were increasing, not their actual distances.

"The suns are falling toward us," he shouted: "they left the rings behind them when they started to fall. The suns are rushing toward this plain!"

No sound from the multitude responded. They were dazed into apathy. Even the sudden union of the five rings into a single, dazzling vortex-ring of light wrung no cry from them.

"I have succeeded," Culman sighed. "That ring of light shall save Eos from ruin. Sylvester, your work begins where mine ends. There is the ring of free energy to complete your purpose. Use it."

"Let us to our work, then," Sylvester answered. "Will you come with me to my laboratory? It is on the new ray screen, directly over the center of the great ball of the Undying Fire. My apparatus is there. We have ample time for what must be done before the suns approach too near and swing us into a new orbit."

We signified our assent, and hastened after him, through the laboratory of life analysis to the Chamber of the Undying Fire.

"That ring of light is the salvation of Eos," Culman repeated; and we, who had slept for half a generation in the shadow life of the future, could only speculate on his meaning. We never questioned the wisdom of his decision; we were content to trust ourselves to his will. For there was no anger in his voice, only sorrow and disappointment at the ripened, bitter fruit of all our civilization.

On entering the Chamber of the Undying Fire, the full significance of the change that had come over Eos in the last few moments struck us like a blow. We realized that the secret of the suns was about to be revealed, and for an instant our confidence in the wisdom of Culman and Sylvester deserted us. Had they acted in haste? That was the uneasy thought that caused me, at any rate, to wish myself back in the shadows of the time stream.

It was not cowardice that made me face the immediate future with dread. Rather was it the ineradicable instinct of the living mind to cling to its body to the last possible instant, that quickened my heart beats and shortened my breath. However, the unworthy fear passed quickly, and I hastened forward with my companions toward the great central ball of the Undying Fire.

Outside, watching the gradual separation of the suns and the subsequent startling formation of the single vortex-ring of light, we had been merely dazed by the rapid succession of phenomena which seemed to violate every known physical law of nature. But the quick walk through the main life-analysis laboratory had reawakened our perceptions to their sharpest; and when we entered the Chamber of the Undying Fire we were half prepared for the ominous change which greeted our eyes.

When last we had left it—to speak with Cheryl—the great ball had been white and dazzlingly incandescent. Now it was a sullen red. Too evidently it was dying.

The perfect balance of our process for transforming the matter of the ball into energy and the energy back into matter, was upset; and the life of Eos was expiring before our eyes. At this moment all mechanical motion, all travel, all lighting, heating and chemical industries upon which our life depended, must be at an absolute standstill throughout Eos. For all of these, and a thousand no less important enterprises essential to the continued existence of our civilization, drew the motive energy which was their life from this central source. And now the heart of it was dying.

In a little while, I mused, vast areas of the planet would be plunged into total darkness for the first time in our recorded history. The light upon which we depended for the maintenance of animal and vegetable life was generated from the radiant energy of this prime fountain; and presently the last faint vitality must go out. That the fire was dying fast was evident. Even as we hurried toward it, to ascend the escalator to the new ray screen above, the angry red of the ball grew perceptibly duller and the last slow scintillations flickered out in sullen crimson. Our supremacy over nature was at an end.

HENCEFORTH, when the Undying Fire had blackened and become lifeless from shell to core, nature would be master, and we, serfs. Or so I thought, musing on the wonder of our downfall. Then a more urgent dread clamored to be heard.

Our engineers had been accustomed to gauge the degree of their control over the transformation process by measuring the precise color of the ball. A faint violet tinge over the incandescent surface signified that all was normal and the control perfect; a pure white meant that the radiations were being emitted too fast. The first, faint suspicion of red was the danger signal. It meant that the atoms of matter in the ball were breaking down and being annihilated faster than the controlling process could again build them up.

If unchecked, this destruction of the matter must soon reach a critical stage, and the whole, with terrific violence, disintegrate into absolute void. More: the de-

struction of the matter would not stop with the ball, our physicists taught us; it would most probably spread out in a spherical wave of ruin annihilating all matter in its onrushing destruction. So the instant the reddish tinge appeared, the full staff of scientific attendants on the ball would be summoned, and each man of the thirty-five hundred sent at once to his station, there to shorten or lengthen the particular ray pulses of the total control in which he was expert.

"Have the engineers taken their stations?" I panted, as we hurried toward the escalators.

"Yes," Culman replied. "They are in Lower Eos."

"But why?" Herron expostulated. "Look at the ball! Another shade of red and it must explode. Eos will be annihilated in a tempest of destruction."

"The engineers are in Lower Eos," Culman said, "because they all are lovers of reason and friends of peace. They left Upper Eos of their own free wills."

"Abandoned their posts to let all our myriads perish in a whirlwind of fire?"

"Not all shall perish," Sylvester said. "For I have discovered sufficient concerning the nature of gravitation and its control by scientific agencies to enable me to preserve the innocent. The children and the old, the young men and women, and all the lovers of peace who quitted Upper Eos when the beast claimed its first sacrifice, shall be saved.

"Only those who deliberately, and of their own free wills, remained in Upper Eos to foster hatred, strife and bestial killing, shall see all the secret of the suns revealed. The peace lovers, the children, the aged and the uncontaminated young will presently leave this place forever, to plant what is good in our civilization upon some undefiled planet. For Eos is become as the Desert. The beast is aroused, and we have resolved to slay it before it exterminates our race."

"Eos is to be destroyed?" Decasse asked, aghast.

"Upper Eos only," Culman answered. "It is the better thing."

"Is that what our ancestors meant when they advised us to use the secret of the suns?"

"It is not. They counseled a more drastic remedy. Had we followed their advice we should now be on our way to annihilate all, not merely those who have declared their allegiance to the beast. But we, who had not seen the actual beginnings of war which you have just witnessed, could not in mercy obliterate all. Our forefathers willed that not one seed of our accursed race be cast upon another planet. All, they declared, must of necessity be deeply tainted with the lust of killing if war should again break forth even between a few. For our race is one, not many individuals, they declared; and the decay of one member forecasts the corruption of the whole body. Therefore did they advise the destruction of all.

"But the Council could not bring themselves to destroy the sound and innocent of war lust along with the corrupt. It may be, after what we have seen out there by the scarlet tree, that our ancestors were wiser than we. Perhaps the beast, never in reality rooted out of our natures, still sleeps in each one of us; and it may be that the descendants of the gentlest of our offspring shall sow the seeds of war and hatred broadcast over the universe. This it is precisely which the builders of the monuments foresaw and dreaded.

"In stamping out the secret of gravitation they sought to prevent this infection of all time and space forever. Nevertheless, for humanity's sake, we have disobeyed the strict letter of their injunction, acting only up to the broad spirit. Had not Sylvester partially resolved the mysteries of gravitation, we should have been forced to adhere to the letter of their command—for so it is—and annihilate all."

CHAPTER XXV

A Race Against Time

WE HURRIED on in silence until we reached the escalators, when Culman spoke again.

"Come, time presses. Soon the darkness will be down on us like a pall. We shall have to climb—the first ascent by foot that any of us has ever made. The driving machinery of the escalators is stopped with all the rest. Its motive energy has been cut off with that of all Eos. Our planet is all but dead. When this ball of fire gives out its last light, all will expire."

We were about to begin the long, exhausting ascent to the new ray screen above the ball, when we paused for a moment, listening to a faint, rapid pattering of footsteps far in the rear. Someone was hastening through my old laboratory to overtake us.

"It is Palgrave," Culman announced. "I knew he would be in time for the end."

"There is someone following him," said Ducasse. "Hark—the double footfall."

We listened, and heard presently, not two distinct beats, but four. It was evidently one fast runner pacing three others who lagged but a short distance behind him.

"Palgrave will overtake us," Culman said. "We can wait no longer."

We began the endless ascent, toiling laboriously up the spiral in the swiftly thickening darkness. Only the last red glow of the ball remained to lighten our way: the light which streamed from the white suns down through the ray screen, was scattered far aloft in a feeble twilight which but made the gathering gloom the deeper. And we, who had never even slept away from the pure, health-giving light of our own creation, stumbled wearily up through the depressing darkness like shadows in a dream.

In that long, fatiguing ascent it never entered our thoughts that this ending of all our happiness was other than a just and inevitable retribution. Lifting one foot after the other in utter weariness and dazed into somnolence by the dull, blood-red glow from the dying fire of the ball, I held up a hand in front of my eyes as I mounted to my doom, and thought, "Truly this ending is the better thing.

"Better that this hand which grasped the jagged stone be annihilated, with the brain and body behind it, than that I become a beast given over to warring upon my kind. And better that the millions who have sunk to the depths of a brutehood as low as mine be swept with me from the universe forever. For they too have fallen upon each other with hatred in their hearts and killing in their hands."

Nearer and nearer the footfalls of our pursuers pattered up behind us as we entered the thin, upper twilight. At last one toiled up abreast of us. Ducasse was the first to recognize this white-bearded, grim-visaged old sage as the Palgrave whom we had known in all the pride and vigor of his young manhood.

"Palgrave!" he exclaimed. "You have aged a lifetime."

His long pursuit had all but exhausted him, and he did not immediately reply. He slackened his pace to ours, and presently recovered his breath.

"Yes," he said. "I have aged. And you four slept through all the betrayals and degenerations of our once perfect race. Therefore you have kept what I have lost. You are young to die. Yet, like true Councillors, you have returned to Eos to share our just end. We knew you would."

Nothing further was said until Culman asked who our pursuers were. He seemed to guess, but to be indifferent whether they overtook us or succumbed to the exhaustion of the ascent.

"The mad lovers and their flaming daughter. They are sane at last," Palgrave said with a bitter laugh. "All down the laboratory of the beast they clung to me, beseeching me to save them from they dream not what, only that it is not love. Already the whitened suns are separating visibly, and the great ring is beginning to approach Eos.

"They dread; but what they fear they cannot express. They asked me the truth of that blinding vortex-ring of light. I told them. But they disbelieved that this impalpable whirl of light which fills them with a nameless terror shall avert our ruin. They cried that Eos must crash into one of the suns and be consumed. For they have realized that we are falling toward them with an ever gathering speed.

"Already their imaginations heat their bodies. They feel the flame before it is kindled. As ever they reject all reason. They accused me of deceit when I told them what Sylvester has proved, and all our mathematicians confirmed. They would not believe that the fall must be checked of itself in the mutual balance of a new and stable orbit long before we suffer from the increased heat."

"They scoffed when we warned them of the beast that their marriage must arouse," Culman said bitterly; "so what more natural than their disbelief now in our predictions of nature's infallible regularities?"

"TO THEM," Palgrave replied, "the deceits of the eye are still the foundations of all belief. Truth to them is something that can be weighed, and seen, and handled. So they are coming up with the solid, physical evidence of their own truth—their daughter in love—to see our tangible verities with their own eyes. Well, in one instantaneous flash of knowledge more truth shall be revealed to them than ever they believe existed."

We toiled up the last steps through the increasing light, and emerged on the white stone roof above the Chamber of the Undying Fire. At first the intolerable glare of the five suns blinded us; but presently, growing accustomed to the fierce light, we saw with an unnatural distinctness of vision. Far below us lay the Plain of the Five Pillars, now lit only by the naked blaze of the whitened suns and the blinding effulgence of the vortex-ring of energy which they had ejected. Small black dots, either singly or in dense masses, crawled aimlessly back and forth over the plain in the hard, pitiless glare.

Here at our great height above the plain with its seething multitudes, we heard nothing of the tumult and shouting. The drama beneath our eyes was mute. Perhaps, for all we knew, those multitudes of actors were awaiting their destiny in silence.

"This way," Sylvester directed, leading us over the dazzling white stone of the roof toward the vast expanse of the new ray screen. "My laboratory is in the center of that area."

In the white brilliance of the swiftly approaching suns the level, circular disc of the screen alone shone like a sheet of distant water; and the gigantic machinery of transmission towered steeply up from its glassy surface like precipitous islands of craggy rock. Toward these we hastened.

Just as our feet ventured the transparent ray screen, an appealing cry rang in our ears. Involuntarily we turned. The two lovers and their daughter in love, all but exhausted, were stumbling toward us over the glistening stone.

"We cannot wait," Sylvester said. "If they wish any truth from us they must follow. Faster! Look at the ball and hasten. When the Undying Fire goes black it will be the end."

Like a young runner who wins his race, he gathered up all his vitality into one supreme effort, and shot ahead of us.

We redoubled our speed. A dull, faintly red glow beating up into our faces warned us that the Undying Fire was about to die for ever. Past the titanic machines we staggered, striving vainly to lessen Sylvester's lead. Apparently immune to fatigue he raced on far ahead of us over the glassy surface, toward a low metal building directly in the center of the screen. We saw him reach the narrow rectangle of the door; and for an age, it seemed, as we toiled toward it, we struggled with him to unfasten its hundreds of intricate locks and bars. We saw the last of them yield to his frantic patience; and with a far, thin shout to us, he entered. Still we could not cover the last distance between us and that door. It was as if our steps grew shorter with each stride. I felt that time itself was changing beneath our feet, and that we never should reach Sylvester. What was he doing? And was his time sense also changing, so that strive as he would, the end must overtake him before his task was finished?

Presently he emerged again, and stood for a moment gazing up at the onrushing suns and the blinding vortex of light which appeared to recede ever farther and farther away from them into the blue depths of space. This recession, we realized, in spite of our exhaustion, was illusory. The ring was approaching Eos; but the five suns so immeasurably outraced it, that it seemed to fall back into the void.

Then, while we followed him with reeling minds in an agony of doubt, Sylvester suddenly turned and shot into the building again. His time sense was yet true to the rate of nature, and he would finish his work. Once more, by a forward leap of the memory, I anticipated the instant result of his labors. For in a flash the aspect of the heavens was changed. The vortex of light grew all but imperceptibly wider: it was rushing down through space to overtake the suns.

"It obeys his will," Culman panted. "The innocent are saved."

We were less than a hundred paces from the door when Culman gasped out his triumph. No sooner were the words past his lips than we saw a bent figure appear

at one corner of the building, slink along the front wall, and vanish into the open doorway. A great cry of despair burst from Culman's straining throat.

"Dill!" he groaned, and pitched forward on his face.

"The ring," Palgrave shouted. "We are too late!"

The vortex of light had instantaneously canted over in its downward course; and now, instead of approaching us full on, was coming down edgewise toward us like a knife. We others did not yet know the full meaning of that terrible accident, but we guessed, and the half certainty all but slew us where we were. Savadan and Palgrave each seized an arm of the fallen man and dragged his unconscious body on between them. The rest of us, by a supreme effort of the sheer will, redoubled our speed and hurled ourselves into the building. Were we too late? That, perhaps, we shall never know. Our hope and our belief is that we were not.

CHAPTER XXVI

"Eos is Saved!"

IT WAS a seething whirl of cold, intense fire into which we had hurled our bodies. Like tormented serpents, intricate knots of the blinding violet light writhed and twisted over each other on the floor of Sylvester's laboratory, or darted through the clear spaces in swift flashes of lightning, colliding with one another or with the metal walls and rebounding instantly.

Through this mad confusion of solid, living flames we peered for Dill and Sylvester. At last, against the farther wall we made out two gigantic shadows locked in a desperate struggle. Dimly above them rose a broad crystal cylinder in which a single trefoil vortex of blinding white light spun slowly about its vertical axis. Instinctively we knew for what the shadows were battling to the death. One sought to destroy the cylinder, and release its triple vortex of sheer energy; the other as desperately strove to present him from shattering the crystal.

Through the whirling mazes of the violet fires we reeled to Sylvester's aid. The cold flames opposing our forward motion were rigid, but shouldering them aside, we began to win our way through to the fighting shadows. Half way across the laboratory my feet struck one of the writhing, serpentlike knots of the violet light. The impact was elastic, like the rebound of a hammer when it strikes a jet of water issuing at high velocity from a narrow orifice under enormous pressure. And that momentary contact shocked every nerve in my body in an excruciating, jarring agony. The next instant I had stumbled foul of the writhing knot. Like a maddened snake it darted over my limbs and body in a clinging, vibrating coil. I was bound immovably by this living thing. A sudden unnatural lightness of body and limb rendered me powerless to disengage the flickering coils and so free myself.

I was constrained to immobility. Ducasse, springing aside from another of the violet coils to avoid a like entanglement, struck heavily against my shoulders. Instantly my weightless body, no longer subject to gravity, shot forward like a stone from a catapult, straight for the battling shadows. Colliding full on with one of them, my body hurled his solid mass with terrific violence against the crystal cylinder. It rocked, and in the rebound I heard Sylvester's cry of despair, and caught a flash of his frantic struggle to right the tottering crystal.

I must have lost consciousness then for a few moments. All I remember is a blurred confusion of innumerable collisions with great fragments of shattered crystal and solid flames which my impacts set into more violent motion, and one final shock against Culman's body as it was dragged in by Palgrave and Savadan.

Opening my eyes I looked straight into the red glare of some intense radiation being reflected from a converging mirror. Under the steady beat of those red rays the violet coils about my body were dwindling to thin threads. Presently the last faint wisps of the clinging light vanished, and I was free. Immediately my weight returned.

Staggering to my feet, I found that I could not yet walk, and stood idly watching the scene before me. All through the laboratory similar cones of red rays were sweeping back and forth over the floor and through the air. Wherever the rays cut through a coil or knot of the fierce violet light, it was dissolved and ceased to exist. Presently all that remained of the mad sea into which we had plunged was a single vibrating mass of knotted light, heaving tumultuously, in one far corner where the red rays could not reach it.

For a moment I was minded to shift one of the converging mirrors, and play its destructive radiations upon this last tangle of the violet fire. Had I done so, the subsequent course of the time stream might have been deflected, and all the shadow life of the future a different existence from what it must be.

But I was dazed, and did not yet fully understand the nature of those cold violet flames which seemed intangible and solid, and which appeared to be endowed with an ophidian semblance of life. And a dread curiosity to know the immediate future of Eos numbed all less urgent desires into impotence. I would know, and yet I feared to learn. So I stood irresolutely waiting for some chance word or gesture from the others to give me the knowledge which I was afraid to ask.

A terrible calm pervaded the laboratory. The struggle of the shadows and our battle with the violet flames had been an evil dream; this dead hush was the cold reality of terror. All, pursuers and pursued, having reached their goal, stood helpless and silent, contemplating the mad work of an impersonal and callous chance. Culman, now recovered, but with a red gash across his forehead, stood with Sylvester, staring in fascination at the triple vortex of sheer light revolving within its crystal cylinder.

THE base of a similar apparatus stood vacant, its crystal shattered on the floor. I realized that the violet flames through which we had fought our way to the shadows were the wreckage of a second triple vortex of energy which had burst and multiplied in its ruin. And Dill, I knew, had caused the destruction. He lay stunned by his impact against the still whole crystal. His eyes were open and fixed in a dazed stare upon the revolving vortex. No one, not even his dupe and ally Beckford, paid the least attention to him.

Apart from the rest stood Cheryl with her daughter, the Singing Flame. Both were stiff and speechless with apprehension.

Herron began idly turning over fragments of crystal with his foot. Now and then he stopped to glance with aversion at Dill, the wrecker of our hope. Once he

picked up one of the heavy fragments and stood irresolutely weighing it in his hand, measuring the distance between the missile and Dill's head. Then, with a sigh, he tossed the massive lump away.

Palgrave, calm and thoughtful, scientist to the last, was busily adjusting the mirror at the base of a broad metal tube. He was the first to break the awful silence.

"Tip your mirror, Sylvester, so that the rays from the vortex strike mine at the normal incidence."

Sylvester reached up quickly and swung the mirror of burnished metal into position over the crystal cylinder, so that the rays of the revolving vortex impinged directly upon its shining surface. The cylinder, I now noted, was open at the top. By means of a large, graduated handscrew he slowly tipped the mirror to the desired angle. As the mirror slowly canted, the triple vortex began to spin more rapidly about its vertical axis, until finally, when the mirror reached perfect adjustment, it was spinning so fast that it appeared as a solid, pear-shaped body of intense and stationary white light.

Palgrave now once more adjusted his receiving mirror beneath the metal tube, so that the reflected rays from the spinning vortex, impinging directly upon it, were reflected straight up the inclined barrel of the tube. Having completed his adjustments, he stood erect.

"Draw back the shutter, Culman," he said, "and let us try."

Culman depressed the lever, and a great segment of the metal roof slid back, disclosing a view of the heavens that wrung a groan from the watchers. Since we had last seen them the five suns had separated to thrice their mutual distances, and the blinding single vortex-ring of light, cleaving down through space like a knife, was still rushing edgewise toward us. It had overtaken the suns, passed them, and now appeared as a long, narrow slit of sheer light stretching half way across the heavens.

Carefully sighting along a small directing telescope on the side of his metal tube, Palgrave very accurately adjusted one screw after another until he had obtained the inclination of the tube and mirror which he desired.

"It is no use," Sylvester remarked, watching him with idle indifference. "You cannot pull the ring over again into the horizontal plane with a single pencil of rays, no matter what you do. Before Dill smashed the other generator it would have been sufficiently difficult. Now it is impossible. You can do nothing."

"I can try," Palgrave replied. "You forget that I have just returned from Lower Eos. The memory of the children's faces is fresher in my mind than it is in yours. If only I could strike that vortex up there at a glancing angle, I could tip it back into the horizontal plane."

"How?" Culman demanded, beginning to take an interest in this experiment upon which hung the lives of all the innocent.

"It is obvious. At a glancing angle my rays will hit the top and the bottom of the vortex at different inclinations, and therefore with unequal intensities. The stronger push on the lower part of the vortex will heel it over out of the vertical plane. Then, when it begins to rock, I can cut off the repulsive rays on the lower half, and use only the attractive on the upper. Now what is the exact spread of the rays from this tube? Will their cone take in the whole vortex where it is now, or must part of the vortex miss the divergence of the rays entirely?"

Sylvester gave him the data. "Until it gets to within about half its present distance from us, the whole vortex must lie completely in the cone of rays. After that, part of the vortex must fall outside the path of the rays, and we can do nothing to increase the spread."

"Very well," Palgrave replied. "I must turn that ring over, and bring it down upon our planet full on before the distance decreases to half. Will you take its altitude, Savadan, and keep me informed of the decreases by twelfths of the present distance? The instruments are over there."

Savadan nodded, and went to get his apparatus.

"Now, Sylvester, double the revolutions of your trefoil."

"It cannot be done."

"Try. Remember what our failure will mean."

"One-twelfth decrease," Savadan reported.

Without another word, Sylvester bent over his complicated apparatus of crystal bars and shining metal keys, and gave himself up to his problem. As he worked, quietly intent, Cheryl and her daughter crept nearer.

"Forget my love," the white-haired woman whispered in my ear, "and save my daughter's life. She is not to blame."

"Two-twelfths," Savadan announced. "The speed of approach is increasing in geometrical progression."

CHERYL'S aged, beautiful face, pained me with its unselfish sorrow. "I would gladly save your daughter if I knew how," I answered aloud. "But I have been in the shadow life for a full half of one of our generations, and I know nothing of what Science now is in Eos. Scientific knowledge seems to have more than doubled in my absence. I am as ignorant as a child."

"Three-twelfths," Savadan's voice rang out sharply.

"What is the meaning of that terrible ring of light rushing down toward us like a sharp knife," the Singing Flame asked in a firm voice, although there was fear in her wide, brown eyes.

"Four-twelfths," Savadan reported.

"I do not know," I replied to this strange young woman whose very fear seemed a beautiful thing; "except that in some way it is to save Lower Eos from our fate."

"And what is to be our fate?" she insisted.

"You must ask one of the others—one of the older men," I replied, averting my eyes from the sheer, young beauty of her face.

"You will not tell me?"

"I do not know."

"You lie."

"Five-twelfths, one-twelfth more to go before the vortex cuts the cone," Savadan announced. "The rate toward us is increasing yet faster."

The Singing Flame turned from me, and with her mother walked slowly away. They joined Beckford. The last few minutes had stripped the thin remnants of his youth from him; and he stood bent and haggard, revealed for what he was, an old, disillusioned man. I wondered if his love still burned, or if that too had been extinguished with his ambition to tyrannize over the happy people of Eos. Presently the silent three spoke together in low voices, and seemed to draw life and sympathy from some strong bond between them. Their eyes brightened and they followed our nervous movements with an open, scornful contempt.

Then, after a whispered consultation, they walked over to where Dill lay, now evidently recovered from his fall, but too panic-stricken or too cowardly to rise. The three stood gazing silently down on his cowering form. Then the arms of the white-haired lovers stole about each other, and they stood there content and unafraid, forgetful of all except their lifelong love. At the last it proved faithful to them and drove out fear. I envied them their love. Their daughter, stealing a tender glance at them, glided softly away, toward the last tangle of the violet light heaving in the far corner. In a few moments she stole back again, and sitting down by Dill, bowed her face in her hands and seemed to sleep

"One twenty-fourth to go," Savadan cried.

"More speed, Sylvester," Palgrave groaned; "more speed. The rays are still too soft."

Again Sylvester bent over his apparatus, and the triple vortex revolving within the crystal gradually flattened, until it became a thin, whirling disc of the sheerest light. Palgrave left his tube and reached for a heavy mallet. Coming back he took up a position directly opposite the middle of the stream of invisible rays passing from the converging mirror above the cylinder to the reflector under his tube. Then, raising the mallet high above his head, he brought it down with all his strength on the invisible rays. As if it had struck a bar of solid metal the mallet rebounded and flew out of Palgrave's hands

"How much to go, Savadan?"

"Less than a forty-eighth."

"We shall succeed," he said, leaping to his station by the tube. Seizing one of the longer levers, he rocked the whole apparatus slowly back and forth through a small arc.

"Look up!" he cried. "The innocent are saved!"

The long, narrow bar of light rushing down upon us seemed to vibrate. Then it became a long, very thin ellipse, and again narrowed to a solid bar of dazzling light. Almost instantly it opened again, this time into a slightly broader ellipse.

"It is turning over," Sylvester shouted in triumph. "You have saved Eos!"

As Palgrave swung his tube and mirror in an ever wider arc, the vortex of light above us oscillated through narrow ellipses to broader, until finally it canted from side to side of the vertical in almost perfect circles. Then, with a last, slow turning motion, it heeled over into stable equilibrium, and came rushing down toward us in a swiftly broadening true circular ring of fierce white fire.

Its circumference now embraced a full nine-tenths of the celestial dome, and far behind it blazed the outdistanced suns, now widely separated and many times larger than Eos remembered them. They too were sweeping down toward Eos, but the ring must envelop our planet long before they crashed into us or, as Sylvester predicted, sunk harmlessly down below the far horizon.

"Outside to see the last!" Palgrave shouted. "The secret of the suns is ours."

CULMAN and Sylvester followed him out, and we, who but dimly guessed what the end must be, silently joined them in the glaring light. In a moment the white-haired lovers emerged, hand in hand, and came toward us.

"Is not your daughter coming?" Palgrave asked.

"She is with her old friend, who loved her as a child and taught her the first songs of the flame. He is very aged, and needs the comforts of the young."

"He shall find them before long," Culman assured her. "Look out on the plain, man and woman who scorned our laws," he said, "and say whether the thing that we have done is better or worse than bestial war between those black multitudes."

"What have you done?" Beckford asked. His tone was stern. "Fanatic of a cruel science, what have you done? Is that terrible ring of light a fire to destroy us all?"

"It is not," Culman answered. "The fire that will destroy us is a cold flame. Now it is asleep, but it will awake when the ring sets. Look down, if you will, at this transparent screen on which we are standing. That faint red glow, now almost black, is the end of our Undying Fire. It is all but quenched. Yet the fire still sleeps, perhaps, in its cold heart."

"And you fanatics of reason extinguished our fire and with it the life of all Eos?" Cheryl asked. The faint scorn in her voice was a strangely haunting reminiscence of her old contempt before the Council while she was yet a maid.

"Say it is we who have destroyed Eos, if it pleases you," Culman answered. "We extinguished the fire. But we acted for the donors of our civilization whose trustees we are. When this screen cut off the escape of the hard radiations the fire was doomed, and the gravitational balance of the suns destroyed."

"I knew it," Ducasse remarked, ruefully rubbing a lean hand across his stomach. "And now I am about to have a violent attack of indigestion. I'll never assimilate another idea as long as I live." Even in this supreme moment his whimsical mind was true to its crochet.

"But how?" Savadan demanded. "I see that these things are as you say, but I understand nothing."

"I will tell you in the time stream, if ever we meet again," Sylvester answered with a smile. "Little time now remains to elaborate the slow theories of a scientific lifetime. Yet, when all is said, it is as simple as nature itself is when rightly seen."

"And you discovered the secret of gravitation and its control?" I asked.

"Only a part of its secret. If we knew it all we might rise from this roof at will and pass out into the depths of space."

"I think you have discovered far more than you are aware of," I said. "That serpent of violet light which coiled and clung about me in your laboratory there absolutely nullified my weight."

He looked startled. "What shape were those coils? Could you bend them? How were they wound about you? Could you, by twisting the coils, control your loss of weight in any way? Quick, answer!"

"The shape was a tangle of knots too intricate for me to recall now. The coils of light were constantly vibrating and knotting themselves into new, solid shapes. I tried to bend them but could not. Once I fancied that as my arms moved one knot slid over another, and my weight returned for an instant. But I cannot say for certain. Where did the violet light come from in the first place?"

"From the other crystal cylinder which Dill destroyed. When the triple vortex within it struck the floor it burst and multiplied upon itself into the mad fury of light which you fought."

"There is still one tangle of it heaving and twisting in the far corner of the laboratory," I said. "Had not we better go and dissipate it, as you did the rest? Clearly it conceals a great deal more about gravitation than you know or dream of. When that coil bound me, I was absolutely without weight. What if Dill—"

In the terrible glare of the suns and the swiftly setting ring his face went ghastly dead white. He started for the door of the laboratory but never reached it. Through the open doorway shot a whirling ball of seething violet flames. It bounded in great leaps toward us. Then suddenly changing its direction it veered and shot vertically upward with terrific speed, vanishing almost instantly in a last blue spark into the white blaze overhead.

Culman darted into the door of the laboratory. In an instant he dashed out again, raving like a madman.

"They have escaped, they have escaped!"

Cheryl shrieked. "My daughter?"

"Yes, with that beast of war."

"Where?"

"How do I know? Into the depths of space! War and your mad love that caused it all will curse another planet. All our labor is a jest. Oh, if only I could stop that ring . . . . Why destroy those black multitudes and the millions in Upper Eos like them when the accursed seeds are sown? The ring, the ring, the ring! See, see—it sets, it sets!"

"Remove the screen," Sylvester shouted; "break it—anything to free the hard rays. Quick! It is our only chance."

Culman dashed toward one of the colossal lifting engines, and then, with a groan realized the futility of his purpose. It would be impossible to move the cumbersome machine. Its motive power had been cut off with the life of the Undying Fire. We had blocked our avenue of escape behind us.

"Can you do nothing?" Cheryl asked quietly.

"Nothing," he groaned. "We played with fate, and it has beaten us at every turn."

"Is the end near?" Beckford whispered.

"It is upon us," Sylvester replied. "Close your eyes."

Beckford drew his aged figure proudly up. "I will meet my future with open eyes," he said.

I set my teeth and watched the ring. Its light was a terrible fire eating into the fibres of my brain. As Sylvester had warned us it actually was setting. For an instant that lasted an age it seemed to envelop the entire horizon in a white-hot band of incandescent metal. Then with incredible rapidity it shot down and vanished.

"When it girdles our equator," Culman said, "it will contract, and sever our sphere in two. Lower Eos shall be cut from Upper in a flash. Then—" he paused.

"The end?" Cheryl asked.

"Yes."

She flung her arms about her lover as if to shield him; and for a moment their white heads touched in a boy and girl caress.

"Mine," she whispered, "mine."

"For ever," he said, and pressed his lips to hers.

The sullen red beneath our feet grew steadily and swiftly brighter. Distinctly I heard the clicking of the innumerable sparks of incandescence as the life of the Undying Fire began to rise. Reeling, I saw the others stagger. We all were plunging down, down into the everlasting stream of ages. With a thunder of fiery whirlwinds the screen beneath our feet heaved up in a tumult of flames, and subsided; the whole vast structure was collapsing. A great sheet of cold white flame flashed out over the plain to the far horizon and up to the five suns, enveloping them in one transcendant blaze of annihilation.

Then the sheer void of utter darkness and absolute oblivion blotted out our habitation for ever.

CHAPTER XXVII

The Vision of the Unknown Sea

WE WERE adrift in the stream of æons, mere shadows borne swiftly along to an unknown future. Faster than light we sped down the ages, hurled out of material existence into the moving image of an ever fleeting life. Our bodies had been blasted out of the universe, annihilated. And yet those swiftly moving semblances of ourselves in the flux and whirl of time were real and substantial, for we outstripped the slow stream in its unending sweep into the shadowy future.

When time must at last overtake us our destruction will be complete. Our very memories, our vivid consciousness of what we are, will be blown out in one brief gust of eternal forgetting. For the ruin of Eos will have surged over us, and we shall become blacknesses in its everlasting dark. We are living the image of a life, and we are behind the mirror of events.

The realities are in front, ever approaching the bright surface which separates us from life. In that instant when the impetuous forward surge of life, shattering the mirror, passes through and beyond it, we images shall vanish, and the memory of the time stream fade forever from our consciousness.

Of Eos only memories in our minds remained, and these too were passing into oblivion. The waters of the time stream were fast washing us clean of all knowledge. We became as stones, falling down, down through a bottomless ocean that seemed dead and black, yet was instinct and alive with moving color.

"We must return to Eos."

This thought stole through the darkness to our minds. It was the ineradicable desire of the mind to live and clothe itself with substance that urged Savadan's thought to grope through the void to us.

"Eos is annihilated," one of us doubted in response. "How can we return? Where our planet was, and where our suns stood above its central fire, there is a void"

"Follow me."

Obedient to his will we turned about in the time stream and followed Savadan back whence we had come. For ages we battled against the oncoming flood, but the darkness never lightened. It was absolute and unalterable. No gleam of knowledge lifted the impenetrable oblivion over our past. Yet we felt that we were moving steadily back through time to the Golden Age of Eos.

Neither Cheryl nor her lover was with us; ages ago we had lost them in the time stream. At last our motion

through time ceased, and we came to rest in the void where Eos had existed. Our drift down the stream and our long swim back against its eddying currents had restored us to our initial position in time.

Yet it was long before I could believe that we were indeed gazing down into a sheer well of darkness where, but a moment before, our vast planet with its five suns and the whirling ring of fire had flamed up and gone out forever in one instant glory of blinding light. Peering down the blackness of the well, I at last made out a faint shimmer in the unplumbed void, and knew that I was gazing through the vastnesses of a universe to the infinitely distant stars.

Then I became aware of a strange colloquy passing between the minds of Culman and Sylvester. Their thoughts played about our minds like pale flames; and in their dim light we perceived a shadow of the truth that had blotted us and our place in time from the universe. The concern of these two blindly groping minds was purely scientific and impersonal. They sought to recall the natural laws by which they had achieved the annihilation of our planet. Their own destruction and ours seemed to interest them not at all.

"It comes back to me," Culman thought, "that it was while you and I stood watching the flaming mountain which our first ancestors in Eos kindled, that I first grasped the secret of our suns. There was a violet shaft of light from the blazing summit to the heavens. And the five suns rushed toward that shaft, coming to rest and sending down their pillars of light the instant they passed through the shaft and changed color.

"Then the violet shaft became invisible. But my old knowledge fades, and no longer can I recall the simple law which drew our five suns into the hard light of the violet pillar, and bound them immovably there through all the ages of our history. Sylvester, you once had skill in reading nature. What was the secret which I have forgotten? Perhaps, should we again become shadows in the future life, that knowledge might again serve us."

"What I recall of it is simple," Sylvester's thought answered. "But like yours my old knowledge is fading. I am not the mind that I was. The annihilation of our place in time seems to have destroyed the vital parts of my memory. It is as if an aura of our existence permeates the whole place in which our minds have their being. And in the destruction of our place a part of me also has ceased to exist."

He continued, thinking rapidly, but in the terms of a newer science. To this we, who had slumbered half a generation in the time stream, were strangers. He and Culman, it appeared, in a swift succession of basic discoveries, had created this new knowledge. Or rather they had reconstructed the science of our remote ancestors from the few hints which they had gleaned in their explorations of the past. Sylvester himself had irretrievably lost several essential clues; and his doubt coupled with my own ignorance begot but a feeble shadow of the truth. Nevertheless, that it was at least a semblance of the ultimate reality, I am convinced.

PRESENTLY Culman and he ceased thinking, and we felt our minds numbing like those of the newly dead.

"We must recover our way down the stream to the far shadow life of the future," Savadan's mind counseled. "There, perhaps, our minds will remember something of our happy past. And memory now is all that remains to us. The rest is a dream."

"Let us first find Dil and the Singing Flame," Palgrave suggested. "They cannot be far down the stream."

"And those whom we cut off from us in Lower Eos," Ducasse added. "We must learn their fate, or we shall be miserable all our lives in the place of shadows."

Again we drifted down the stream of time. For ages back and forth we sought the lost. Innumerable planets upon whose reflections we gazed bore life in many forms, but never one which we recognized as a possible evolution or descent from our own civilization. The fate of Lower Eos was a riddle to which we found no clue.

Possibly the uncontaminated half of our once happy planet had traveled, in its course down the time stream, into another space infinitely remote from our region of the firmament, and the breadth of many universes beyond our knowledge. And the seeds of love and kindness, of knowledge and perhaps of war, may have swung through their cycle of life in many times and many places, clothing unnumbered planets with verdure and light or with the strange garment of love and hatred which shrouds the shadow life. But to these questions we found no answer.

(To be concluded)

RECLAIMING MILLIONS FROM OCEAN DEPTHS

IN THE past four centuries, the amount of gold, silver and precious objects which have been lost at sea has possibly reached the value of a billion dollars. In many cases, its location is known fairly well; it is possible to get within a few hundred feet of enormous treasures—"so near and yet so far."

In comparatively shallow water, salvage has frequently been possible, but the greatest prizes are at greater depths, and unrecovered Read of the newest methods which have been devised of going deeper and deeper, and the ultimate possibility of man's reaching the greatest depth of the sea —six miles below the surface—with a submarine contrivance,

IN THE BIG FEBRUARY NUMBER OF

EVERYDAY SCIENCE AND MECHANICS

The Moon Era

(Continued from page 1035)

were larger than those of the ones we had encountered in the city. And their limbs were longer. They stalked like moving towers of metal, each upon four jointed stilts. And long, flail-like limbs dangled from the case of each. Crystal domes crowned them, sparkling in the sunlight—covering, I knew, the feeble gray brains that controlled them. The Eternal Ones.

Almost at the edge of the plateau they were when I first saw them. I had time easily to finish sealing the door, to close the valve through which I had let out the excess air upon landing, and to drive up through the moon's atmosphere, toward the white planet.

But I did not move to do those things. I stood at the window watching, hands clenched so that nails cut into my palms, set teeth biting through my lip.

THEN, as they came on, I moved suddenly, governed not by reason but by an impulse that I could not resist. I opened the door and clambered hastily out, picking up the great copper mace that I had left lying outside.

And I crouched beside the machine, waiting

Looking across the way the Mother had gone, I saw her at the edge of the plateau. A tiny, distant form, upon the green moss. I think she had already seen the machines, and realizing the futility of flight had turned back to face them.

As the machine-things came by, I was appalled at their size. The metal stilts were fully six feet long, the vulnerable crystal domes eight feet above the ground.

I leaped up, and struck at the brain of the nearest, as it passed. My blow crushed the transparent shell and the soft brain within it. But the machine toppled toward me, and I fell with it to the ground, cruelly bruised beneath its angular levers.

One leg was fast beneath it, pinned against the ground, and its weight was so great that I could not immediately extricate myself. But I had clung to the copper bar, and when another machine bent down, as if to examine the fallen one, I seized the weapon with both hands, and placed another fatal blow.

The second machine fell stiffly beside me, an odd humming sound continuing within it, in such a position that it almost concealed me from the others. I struggled furiously to free my leg, while the other Eternal Ones gathered about, producing curious buzzing sounds.

At last I was free, and on my knees. Always slow in such an unexpected emergency, the machine beings had taken no action, though they continued the buzzing.

One of them sprang toward me as I moved, striking a flailing blow at me with a metal arm. I leaped up at it, avoiding the sweeping blow, and struck its crystal case with the end of the copper bar.

The bar smashed through the crystal dome, and crushed the frail brain-thing within it. But the machine still moved. It went leaping away across the plateau, its metal limbs still going through the same motions as before I had killed the ruling brain

I fell back to the ground, rolling over quickly to avoid its stalking limbs, and struggling to my feet, still holding grimly to the copper bar

The remaining machine-beings rushed upon me, flailing out with metal limbs. Desperately, I leaped into the air, rising ten feet above their glistening cases. I came down upon the case of one, beside the crystal dome that housed its brain. I braced my feet and struck, before it could snatch at me with its hooked levers.

As it fell to the moss, humming, buzzing, and threshing about with bright metal limbs, I leaped from it toward the other, holding the bar before me. But I struck only the metal case, without harming it, and fell from it into the moss.

Before I could stir, the thing drove its metal limb down upon my body. It struck my chest with a force that was agonizing . . . crushing. A rocket of fiery pain seemed to burst in my brain. For a moment, I think, I was unconscious. Then I was coughing up bloody foam

I lay on the red moss, unable to move, the grim realization that I would die breaking over me in a black wave, that swept away even my pain. The metal limb had been lifted from me.

Then the Mother was beside me. She had come back.

Her warm smooth furry body was pressed against my side. I saw her violet eyes, misty, appealing. She laid the rose-flushed mantles over my side. The pain went suddenly from it. And I felt new strength, so I could get to my feet, though red mist still came from my nostrils, and I felt a hot stream of blood down my side.

The remaining machine-monster was bending, reaching for the Mother. I seized the copper mace again, struck a furious blow at the crystal shell that housed its brain. As it crashed down, beating about blindly and madly with its great metal limbs, my new strength went suddenly from me and I fell again, coughing once more

A flailing limb struck the Mother a terrific blow, flinging her against the moss many yards away. She crept back to me, brokenly, slowly. Her golden fur was stained with crimson. Her mantles were limp and pale. There was agony in her eyes.

She came to where I lay, collapsed against my side. Very low, her musical tones reached my ears and died abruptly with a choking sound. She had tried to tell me something, and could not.

The last of the Eternal Ones that had followed was dead, and presently the machines ceased their humming and buzzing and threshing about upon the moss.

Through the rest of the day we lay there, side by side, both unable to move. And through the strange night, when the huge white disk of the earth bathed us in silvery splendor, and in my delirium I dreamed alternately of my life upon it, and of my adventures upon this weird moon-world, with the Mother.

When the argent earth was low, and we were cold and drenched with dew, lying very close together to benefit from each other's warmth, the wild dreams passed. For a few minutes I was coldly sane. I looked back upon a life that had never had any great purpose, that had been lived carelessly, and impulsively. And I was not sorry that I had come to the moon.

I remained with the Mother until she stirred no more, and no effort on my part could rouse her to life. With tears in my eyes, I buried her beneath the green moss. Then stumbling to the ship I climbed in. Sealing the door and starting the machinery, I felt the ship lift quickly toward the distant beckoning earth

THE END

Do You Want Science Fiction Movies?

We address this question to all lovers of science fiction.

Motion picture companies are asking this question, too. But despite the success of science fiction in this country, and the rapidly growing reading public, the number of science fiction movies that have appeared in America have been pitifully few.

"Metropolis" and "By Rocket To The Moon" were German films; only "Just Imagine" which was after all a humorous rather than a realistic film, "The Mysterious Island" and one or two others have been filmed in America.

Now comes news that Universal is filming "Frankenstein," and "the Invisible Man" of H. G. Wells; and that R-K-O has a film resembling the "Mysterious Island." But these few films are mere crumbs thrown to the hungry lover of science fiction. And even the millions who do not read science fiction, who are lovers of adventure, and exploration in new places and times, are becoming tired of the monotony of sex, gangster and war pictures.

Do You want Science Fiction Movies?

If you do, you have but to make yourself heard. Many of our readers are writing to film companies to make their desires known. BUT THAT IS NOT ENOUGH! Film companies are guided by the wishes of thousands and tens of thousands, not by a few letters here and there.

Wonder Stories and Wonder Stories Quarterly Will Make Your Demands Count

We are organizing a gigantic petition signed by all those who want science fiction movies and will present this petition to the large motion picture companies. IT IS UP TO YOU as lovers of science fiction to make this a success.

Get Five Signatures to This Petition

and return them to us at once. We will gather them together and *show the motion picture companies the enormous demand for science fiction movies.*

Sign this petition yourself, get four other signatures of your friends and relatives and return them to us. We will do the rest!

If you wish additional petition blanks write to us for them immediately.

EDITOR, WONDER STORIES
98 Park Place,
New York.

We the undersigned, herewith add our voices to the great demand of lovers of science fiction, for the production of a reasonable number of Science Fiction Movies in America If such pictures are produced, we will support them loyally and urge our friends to do likewise.

(Name—Please write plainly) ..... (Address) .....

(Name) ..... (Address) .....

(Name) ..... (Address) .....

(Name) ..... (Address) .....

(Name) ..... Address) .....

Science Questions and Answers

This department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impracticable, also, to print answers as soon as we receive questions. However, questions of general interest will receive careful attention.

Stars and Constellations

Editor Science Questions and Answers

1. How many constellations are within 100 light years of the earth?

2. Could you give the distance from the earth of the twenty closest stars?

Burleigh Sult,
Boys' Home,
Lovington, Va.

(1. A stellar constellation is not, as our correspondent appears to be eve a group of stars close together. A constellation is merely a group of stars that we see in a certain section of the sky. There is for example the constellation called Andromeda. All stars within that section, no matter what their distance from us, are said to be "in Andromeda." Some stars in the constellation may be a hundred times as far away from the earth as others. We have no way therefore of answering this question.

2. The following are the twenty nearest of the principal stars with their distances from the earth in light years (a light year is 6,000,000,000,000 miles).

Star	Distance (light years)
Alpha Centauri	4
Alpha Canis Majoris (Sirius)	9
Alpha Canis Minoris (Procyon)	10
Alpha Aquilae (Altair)	16
Pi Orionis	25
Alpha Lyrae (Vega)	27
Beta Geminorum (Pollux)	33
Alpha Piscis Australis	23
Alpha Bootis (Arcturus)	33
Eta Bootis	33
Beta Leonis (Denebola)	36
Alpha Aurigae (Capella)	50
Omicron Ceti (Mira)	50
Delta Cassiopeiae	50
Beta Arietis	50
Alpha Geminorum (Castor)	50
Delta Leonis	50
Gamma Virginis	50
Alpha Tauri (Aldebaran)	55
Alpha Phoenicis	55

In explanation of the above table, the first word is a Greek letter to identify the star from others in its constellation. The second and third words give the constellation or group of stars on the sky in which the star is placed. The word in parenthesis is a general or popular name by which the star is known.

Therefore, Alpha Canis Majoris is the star Alpha of the constellation Canis Major, which is the latin term for "big dog." It is known popularly as Sirius.—*Editor.*)

Disintegrating the Atom

Editor, Science Questions and Answers

I have read quite a bit in science fiction about the disintegration of the atom. Has this really been accomplished yet? And if so how?

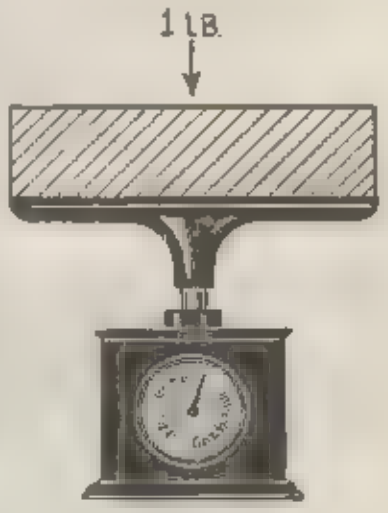
Everett Smith,
551 W. 125 St.,
New York.

(The atom has been disintegrated for billions of years by nature herself in the radioactive substances. Uranium is constantly breaking down to form radium and finally lead. This is a process that goes on whether we like it or not and we can neither accelerate nor retard its action.

The disintegration of the atom by artificial means was accomplished in 1922 by Sir Ernest Rutherford. Rutherford bombarded nitrogen atoms with alpha particles of radium (which are in reality the nuclei of helium) and he obtained as a result hydrogen atoms. What he did was to break up the nitrogen nuclei which consist of protons and electrons into groups of hydrogen nuclei. These nuclei each possessing a single positive charge attracted free electrons and became hydrogen atoms.

Of course this experiment did not produce atomic energy. As a matter of fact energy was required to produce this disintegration.

Furthermore, it was necessary to bombard the nitrogen with a good many thousand alpha "projectiles" before a single hit occurred. Rutherford's experiments did however prove that hydrogen was the building block of all atoms, and that by breaking down an atomic nucleus other atoms could be formed. Sir Oliver Lodge called Rutherford's experiment "one of the most remarkable experiments ever performed by man"; and it has opened the way to further attempts at disintegration of atoms with the consequent possibilities of the release of atomic energy and transmutation of matter.—*Editor.*)



Illustrating how a one-pound weight can weigh two pounds. If two one-pound weights are sufficiently magnetized and one be placed on a scale and the other be suspended above it by the force of magnetic repulsion, then the weight on the scale will register two pounds, just as though the second weight were resting on it.

Magnetism and Weight

Editor Science Questions and Answers

I read in some magazine that one magnet could support another in the air without touching it. Now if these magnets were of the same weight, would the bottom magnet weigh twice as much when supporting the other in the air?

George H. Armstrong,
McKinley Ave., Route 4,
W. Hempstead, New York.

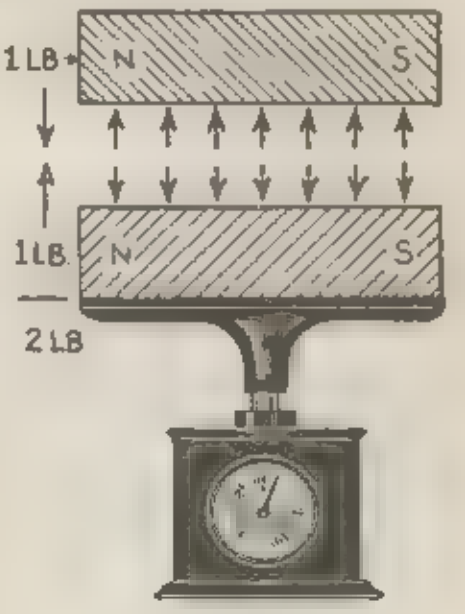
(If one magnet were able to exert a repulsive force upon another, sufficient to support it in the air against the force of gravity, then the supporting magnet would register double its own weight upon a scale.

In the accompanying illustration is shown just what would happen. Suppose the supporting magnet to rest upon a spring balance scale. Then it would register, let us say, one pound on the scale. Then let us suspend above it another one-pound magnet, whose positive pole is above the positive pole of the supporting magnet. Now in order to support the upper magnet against the force of gravity the repulsion between the two must be exactly one pound. If it were less than one pound the magnet would fall upon the supporting magnet. If the repulsion were greater than one pound the upper magnet would move upward away from the supporting magnet, it would, in other words, be accelerated upward.

Now since the repulsion is exactly one pound, the repulsive force is equal and opposite between the two magnets. Therefore the bottom magnet has the effect of a second one-pound weight resting on it.

The same effect would be observable if one magnet were supported from above by a spring balance, and a second magnet were placed under it, and supported in the air. The spring balance would then register two pounds.

If our one-pound weight had been placed on a new planet where the surface gravitation were twice what it is on earth, it would also weigh two pounds. This close association of gravitation and magnetism has led Einstein to search for a formula that would unite the two, and explain one by the other. —*Editor.*)



Our Burning Sun

ditor Science Questions and Answers

ately our physics class ran into a discussion of the sun. Two facts made me write in and ask what the explanation can be. Here are the questions:

1. What causes the sun to give off energy for such a long period of time?

2. How can the sun continue to "burn" if there is no material in space to support combustion?

If you can answer these questions for me I will be very pleased.

William Pye,
121 Comm. Agricultural College,
Storrs, Conn.

(1. Scientists have not yet agreed on the reason why the sun has apparently been giving out energy for five billion years, when it should have been entirely consumed by its prodigal disbursements in some 10,000 years. Two theories have been put forward to account for the facts—both theories based upon the release of atomic energy within the sun.

The first theory assumes that the terrific heat and pressure within the sun's interior cause the atoms to vanish, the electrons to coalesce upon the protons and energy to be released. The second theory assumes that atoms of hydrogen are being built up into

(Continued on page 1098)

IN this department we shall publish every month your opinions. After all, this is your magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips us occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail, no communications to this department are answered individually unless 25c in stamps to cover time and postage is remitted.

Good Lord What's This?

Editor, WONDER STORIES

I should like to tell you how glad I am to hear that David Lasser's book on the rocket, "The Conquest of Space" is to be published in England. I hear from a reader friend of mine that it is causing a sensation. Various people he knows picked it up with that "Good Lord what's-this?" expression, so frequent in the non science fiction readers, and not one of them failed to remain most deeply intrigued until the very end.

"Mr. Lasser's claims sound less exaggerated than those of many of the early flying enthusiasts," my friend told me.

So the prospects of a good bag, both in quantity and quality among the reviewers seems assured.

John Beynon Harris,
9 Tavistock Square,
London, W. C. 1, England

It is a curious fact that there often exists a mental gap between the man who reads science fiction and one who does not. The science fiction reader learns through the stories what the possibilities of the future are. He becomes accustomed to thinking in terms of these possibilities, and is not mentally frightened when one of them is suggested in actuality.

Most readers of science fiction do accept the idea of interplanetary travel as a distinct possibility of the future. Yet in reviewing the "Conquest of Space" with its serious predictions of what the future of rockets would do for our civilization, Lewis Gannett in the New York *Herald Tribune*, in this year A. D. 1931, stated that "it sounds crazy."

And despite the fact that today, a half dozen rocketeers are working enthusiastically to make the dream of interplanetary travel come true, there are people who still look upon the rocket as a toy, and smile superiorly when its future possibilities are mentioned.—*Editor.)*

Who in Frankenstein Was Right?

Editor, WONDER STORIES

Most stf fans don't know much about stf movies. They falsely imagine that about five such pictures have been produced. I wonder if they would be interested in knowing about all such past films? I think so. And so I trust you will print this soon in a forthcoming 1932 issue of "our" superstf mag.

I have been told that one of the first pictures made was Jules Verne's "A Voyage to the Moon." Later on came his "20,000 Leagues Under the Sea" and recently we have seen his "Mysterious Island." Bert Lytell once made "The Voyager from Mars." UFA in Germany has sent us "Metropolis" a tale of the future and robots—"Our Heavenly Bodies" a tale of a trip around the universe—and was responsible for parts in the recent semi-stf picture "The Mystery of Life."

UFA has also made the thrilling "By Rocket to the Moon." Gaumont in Great Britain has released to the American public a story of 1940—"High Treason." [illegible] filmed. "Radio-Mania" [illegible] "Television," and "The Twentieth Amendment." Around 1926 "The Last Man on Earth" was made a film from a tale in a semi-stf mag. [illegible] showed over a picture of Mars entitled "A Trip to Mars" and so I've heard she also sent "A Revolution on Mars."

If "Dracula" was stf, we've had it too. And coming up are "Creation," "Frankenstein," "The Invisible Man" and (British) "The Man They Couldn't Arrest." And with "our" mags. stf. movie petitions (I've sent in 45 names already) and the work Allen Glasser and myself and a few others are doing, we soon ought to be flooded with such pictures. Universal is now considering the [illegible] of my idea of a series of short pictures showing "Wonders of the Future."

A word about the December WONDER STORIES—and only a word is necessary: *excellent!*

One more thing. Now that you've explained to us who "Frankenstein" was, who in Frankenstein wrote the story! A newspaper says Mary Wollen-Stonecraft Shelley, an advertisement says Mary Wollstonecraft Shelly, and you say Mary Godwin Shelly. Gosh, who's right?

Forrest J. Ackerman,
530 Staples Avenue,
San Francisco, Calif.

We are all grateful to Mr. Ackerman for the complete list of science fiction movies that have been and will soon be produced. This list should help to indicate what has already been done, and what movie producers should do to satisfy the great demand for science fiction movies.

Whether we will get them or not depends upon our readers. Although petition blanks have been coming in at a good rate, WE ARE NOT GETTING ENOUGH OF THEM. Not enough of our readers are taking the trouble to clip the coupon and send in their signed petitions. We must get petition blanks by the *tens of thousands* to make this a success. If any of our readers do not wish to clip the coupons from the magazine we will send them extra petition blanks on request. Let's get behind this movement and show the movie world the organized strength of science fiction fans.

Regarding the dispute over the name of the author of "Frankenstein," she was born Mary Wollstonecraft. Her mother's name was Mary Wollstonecraft Godwin, and she married the poet Percy Bysshe Shelley. Perhaps, therefore, her name, to suit everyone should be Mary Wollstonecraft Godwin Shelley.—*Editor.*)

The Main Thing is a Plot

Editor, WONDER STORIES:

The main thing in a story is a good plot. That would come first with me. I like action in stories but I think that there should be but a certain amount in certain types of stories. Some stories are spoiled because there is too much action in them while others have not enough action.

I like WONDER STORIES because in most cases it has just the right amount of science and action.

ON LETTERS

BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents therefore, to make their letters as brief and to the point as they can as this will aid in their selection for publication? Whenever possible we will print the letter in full, but in some cases when lack of space prohibits publishing the complete letter we will give a resume of it in a single paragraph.

Stories with a new and unique scientific idea are always welcome as are descriptions of strange places.

Good illustrations make stories more interesting. I don't see how anyone can resist reading stories illustrated by Paul. His cover illustration on the January number is the best since the change of size. You haven't yet had purple or black backgrounds on the cover. I like to see a variety of colors used.

I welcome John W. Campbell Jr. to WONDER STORIES. The characters in his stories are human, his science good and in most cases the amount of action is just right. I hope that "The Derelicts of Ganymede" is the first of many stories from his pen for WONDER STORIES.

The rest of the stories in order of merit are:

2. "Martian Guns."
3. "The Time Stream."
4. "The Crystal Empire."
5. "The Duel on the Asteroid."

Welcome to WONDER STORIES Mr. Brandt.

Cordially,
Jack Darrow
4225 No. Spaulding Ave.,
Chicago, Ill.

(Mr. Darrow explains our policy very well. WONDER STORIES aims to provide science fiction for people who do not want to fall asleep reading long discussions of scientific detail, and who on the other hand do not want their intelligence insulted by "wild west stories of the future." Therefore, we steer a middle course that provides stories with a good plot, with an intriguing scientific idea, and with plenty of movement to "show what happens." This policy we intend to adhere to. And our readers like it!—*Editor.*)

Consider That Stupendous Theme

Editor WONDER STORIES

If you have not already been deluged with letters commending your metamorphosis from the pulp-papered class of periodical, to the smooth, more dignified elevation, then I, too extend the best wishes to you and your marvelous publications.

In a former issue of WONDER STORIES, you voice the question as to who is your best author. I have given the subject much consideration and thought and here are the results I arrived at.

For literary quality, for sheer descriptive talents, Mr. Clark Ashton Smith deserves the laurels. His descriptions, so harmonious, so well balanced, so picturesque, all tend to make him the master of words. Close behind ranks P. S. Miller and Jack Williamson.

In awarding the laurels as to the author with the most originality, and who can always maintain one's interest, I would choose Dr. Keller. Consider that stupendous theme, "THE TIME PROJECTOR," in which he worked in collaboration with David Lasser. There is a tale, simply narrated, but which surely should rank as the epic of science fiction.

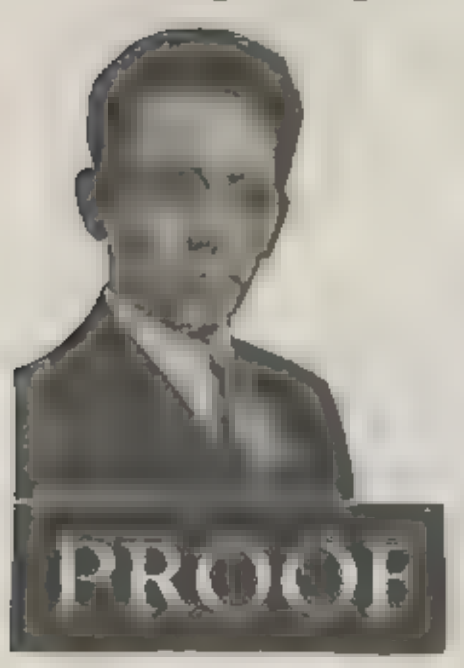
For versatility, Ed Earl Repp should be mentioned. Few can cope with him.

My ambition is to see a yarn penned by all four. Just imagine!

There is one thing I found fault with in your previous issue. The book review of the "Conquest of Space," by David Lasser, does not give the book adequate praise. Why didn't the book reviewer describe the ingenious and elaborate methods of rocket-voyaging devised by the author? The book struck me as being so well written, that

(Continued on page 1098)

Over 25,000 Men have been trained under my supervision for the Better Jobs in RADIO



R. L. DUNCAN, *President*
Radio Training Schools

As a graduate and a student under your supervision, I have only the highest [illegible] Any man who has the ambition to learn Radio could not help but master it by your method of training.
GEORGE A. KAHN,
2997 Montclair Ave., Detroit, Michigan

I am a Projectionist in charge at the Ar[illegible] theatre, recently completed [illegible] me at any time or I will refer to me, if you wish anyone who may be interested in this vast virgin field of all that pertains to Radio and [illegible] industries, and I shall be delighted to champion honestly without any reservation your courses.
A. H. [illegible]
3005 Windham Ave., Cincinnati, Ohio

To study Radio under R. L. Duncan is to learn it properly and in a way that is pleasant and fascinating. I am again thank you for your kind assistance and helpfulness.
E. F. [illegible]
[illegible]
Maple Ave., Sharpsburg, Pennsylvania.

Although it has [illegible] I am [illegible] Radio [illegible] from everywhere.
[illegible] PEARCE
1701 16th Street, Des Moines, Iowa

IN hundreds of Broadcasting Stations . . . in Radio Manufacturing Plants throughout the country . . . in Radio Laboratories . . . in Wholesale and Retail Radio Stores . . . in Radio Servicing . . . in Sound Motion Picture activities . . . on hundreds of ships that sail the Seven Seas . . . and even in the latest Television developments—you will find ambitious men who have been trained under my direct supervision.

I have devoted the last twelve years exclusively to the training of men for all branches of Radio. Employers in the Radio field recognize my methods of qualifying men and young men. I have geared my training to the rapid growth and development of the Radio industry. My courses, text books, methods and equipment are based on years of practical experience.

And now, with the organization of my own *independent* Radio Training Schools, Inc., I am better prepared to help you than ever before, in training for the opportunities which the future of the ever-growing Radio industry will have to offer

You too can train for Future Success in Radio

The next few years will offer more prospects than ever before. The past several months offer positive proof that the trained man has the best chance. You still can get that training which will qualify you to gain a foothold in Radio. Study at home, in spare time, at minimum expense. Earn while you learn. Capitalize your idle and spare time and reap the benefits of a trained man in a progressive industry—Radio.

Make your Idle and Spare Time Profitable

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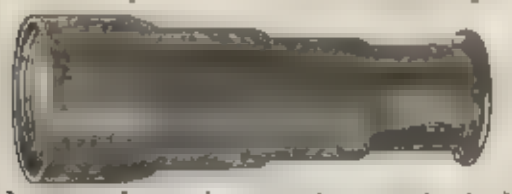

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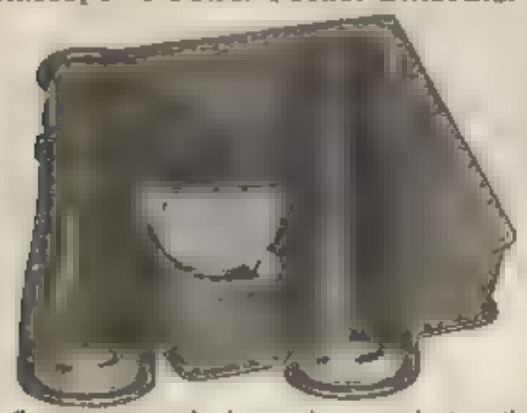

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SCIENCE QUESTIONS AND ANSWERS

(Continued from page 1095)

heavier materials such as nitrogen and helium and in the resulting transformation, energy is released. For an example of the second theory, the atomic weight of hydrogen is 1.008, that of helium is 4. But four atoms of hydrogen make one of helium. Therefore of the 4.032 pounds of hydrogen consumed only 4.000 pounds of helium result. The difference .032 pounds is assumed to be released as energy in the form of heat, light, ultra-violet rays, etc.

It has been calculated that the changing of one pound of material into pure energy would release 26,400,000,000,000,000 foot pounds of energy. It is obvious therefore that the energy of the sun does not require that its mass be consumed appreciably. The remaining life of the sun is given at about one billion years.

2. The answer above probably suggests the answer to this query. The energy radiated by the sun is not combustion, such as we know it on earth—the burning of a fuel by oxygen. The radiant energy of the sun is generated in its interior by the disruption of atoms, and is therefore entirely independent of the external medium.—*Editor.)*

READERS

If you like "Science Questions and Answers" in this magazine, you will find in our sister magazine, EVERYDAY SCIENCE AND MECHANICS, a similar department, greatly expanded called "The Oracle." Look for it, you science fans!

THE READER SPEAKS

(Continued from page 1096)

[illegible] half inclined to write a book review of it myself.

A word more about the "Time Stream." Here is John Taine at his best. The editor should be disintegrated for holding out the other parts on us!

Alfred Justin Moore,
236 Gun Hill Road,
Bronx, N. Y.

Since David Lasser, author of "The Conquest of Space" is also managing editor of WONDER STORIES we naturally felt a little hesitancy about boosting his book too highly. After all there is a place where modesty should always be exercised. Some day we may do as Mr. Moore suggests and print a story that has been constructed by four or five of our authors. It should prove an interesting experiment.

What do other readers think about the question of the best science fiction author? Send us your ballots and reasons.—*Editor.*)

Likes Sad Ending

Editor, WONDER STORIES

I have noticed that WONDER STORIES is getting better stories as well as getting the new size. All the stories have been very good lately with few exceptions. "Exiles of the Moon" was excellent. So was "The World of the Red Sun" by Clifford D. Simak. It was only a very short story but man! what a story. The best point about it was that it was a *different* story. I am one of those fellows who likes sad endings and that story sure had it.

Now I have a brickbat to sling at you. I have just read the first installment of "The Time Stream." This is the biggest piece of

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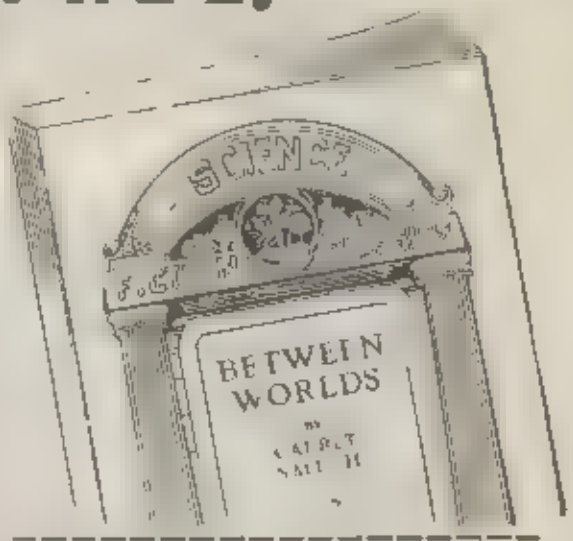

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THE READER SPEAKS

"trash" I have ever read. You must have been asleep when you let that story get into the pages of Wonder Stories. However, I am very well satisfied with your magazine as a whole and I realize that it is impossible to please everyone.

I am glad to see that you are conducting a campaign for Science Fiction Movies. I am heartily for it. I believe however, that you ought to cooperate with the other science fiction magazines, as you would be able to get more demands for movies from those reading other magazines. The other magazines also have many stories that would make good movies. Think it over and, if it strikes you favorably, get in touch with the editors of other magazines. The stories which in my opinion would make good motion pictures are as follows. "Exiles of the Moon," "The Mutiny in Space," "Emperors of Space," "The 35th Millennium," "The Reign of the Robots," and "The World of the Red Sun."

That is about all I have to say so I will sign off now.

Bill Bailey,
1404 Wightman St.,
Pittsburgh, Penn.

(We have had considerable comment re the unhappy ending to Mr. Simak's "World of the Red Sun." Many authors would have had the time explorers rescue a beautiful maiden and escape back to their own time, no matter what difficulties they had to conquer. Mr. Simak preferred to end his story as it probably would have ended in reality with the explorers stranded in an unknown age. Therefore the story made a hit. We don't blame readers occasionally for being somewhat fed up with daredevil escapes, that never happen in real life.—*Editor.*)

Three Stories for the Movies

Editor, WONDER STORIES.

I have been a reader of your magazine for a year or more, and I very seldom miss a copy since I started reading it. And according to my judgment most of the stories are A1.

The lifelike pictures of Paul, your artist, are wonderful, some of them would pass for actual pictures or photographs.

I hope to become a member of your American Interplanetary Society in the near future.

I am a student of a radio and television school, so you can understand that a good many of your stories are of extreme interest to me.

I have already sent my coupon for Science Fiction Movies and would sure like to see almost any of the stories in pictures, but my choice of three right now would be "Cities in the Air," "The Time Projector," and "Exiles of the Moon." Here's hoping that we will be able to see some of these stories in the near future.

There is certainly no comparison between the small and the present size of your magazine. Hope it will remain the same and the stories of the future retain their high class standard.

James S. Adams,
No. 205 B N 5 Street,
Rocky Ford, Colo.

(So far, in the informal unofficial balloting of readers on the question of which stories would make the best science fiction movies—two stories have emerged as most popular, "The Time Projector," and "Exiles of the Moon." When we send the gigantic petition of our readers to motion picture companies we should like to mention the choice of our readers. We suggest you write in and tell us of your preferences.—*Editor.*)

You Don't Have to Grope in the Dark

Editor, WONDER STORIES

I have long been a reader of your magazine and have had the pleasure of reading almost every issue you have published. Although I have never written you before, in spite of my desire to do so, I now find myself writing you a letter of congratulation. But first let me offer a little constructive criticism in regards to some of your stories in late issues.

I rather think you are overdoing the interplanetary stuff in certain respects. There was a time when I thought that there weren't enough stories of this type being published and now I think it is being overdone. These stories, for the most part, are generally interesting enough, but surely every phase of science or subject matter [illegible] earth hasn't been exhausted, so [illegible] must write stories about space [illegible].

Don't misunderstand me, please. I enjoy the space stories but I wish you would balance them off with more stories like that of M. Barnes in the December issue, "The Lord of the Lightning." Mr. Barnes has the right idea and I like his style. It's the kind that appeals to a serious mind, giving both the realistic touch and scientific atmosphere. His science is sound and he gives it in a way that makes it easy to understand. You don't have to grope around in the dark or accept some highly improbable theory to read the story. Let's have more from Mr. Barnes in the future.

Getting back to the congratulations, I want to tell you that yours is the best magazine of its type on the market. It incorporates everything that makes science enjoyable in fiction form, giving the reader many pleasant hours. Wishing you continued success in the future, I remain

Henry Roshier,
Los Angeles, Calif.

(Our stories, we think Mr. Roshier will agree, have been tending toward greater and greater realism. We experimented with the ultra fantastic story and found that neither the editors nor the readers liked it. And authors tended to make their stories so similar that they lost heart too. We are asking our authors that their stories be made more probable and more plausible. They are responding enthusiastically to this [illegible] them a greater play for their abilities. [illegible])

Interested in Rocket Fuels

Editor, WONDER STORIES

This is the second time that I have chosen to grace your magazine with my poorly composed letters.

I read the recent letter from Fitzgerald Gratton of Ireland and I was especially interested in his paragraph on rocket fuels. I am very much interested in explosives but I have not studied rocket fuels very much and I wish you could tell me just where I could get good information on the subject as I wish to prepare a very powerful explosive in my lab.

Where can I get in touch with A. Merritt as if it is possible I wish to make his acquaintance. Will you please name some of his books for me. I am making a library of ancient science fiction novels, i. e., classics. Is it possible for me to obtain the "Moon Pool"?

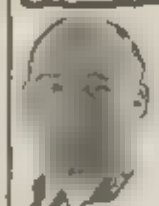
Your latest issue was a pleasant surprise to me. I may have to sue you for damages though, for when I saw the great big Wonder Stories looking formidably down upon me I nearly dropped in my tracks. And as a result I had to spend two days in the Hospital getting a complete rest!

"The Time Stream" is one of your best in two or three months. I wish to congratulate Mr. Taine on his great work. I read his famous "White Lily" and his present story seems to be on par with that masterpiece. The next best story in the issue was the "Andromeda Menace" by [illegible] Houghton. Some writers are able to write a good story up to the climax and conclusion but it just seems they cannot round the story out smoothly and interestingly while others seem to have perfected that art to the highest degree. The "Terror from the Sea" by Robert Arthur, Junior is an example of the former while the "Andromeda Menace" is an example of the latter. "The World of the Red Sun" by Clifford D. Simak is about on par with "The Terror from the Sea" only that the former has [illegible] "The Reign of the [illegible]" and "Lord of the Lightning" were also good stories the former having a rather surprising ending.

What do you say we have a sequel to Stanton A. Coblentz's novel "Into Plutonian Depths" in the quarterly. He has surpassed every [illegible] I know about. His "After 12,000 Years" was the greatest in the world (and it still is).

Day Gee,
(Member of the Junior Scientific Association),
1817 Bond Avenue,
East St. Louis, Illinois.

(Continued on page 1100)



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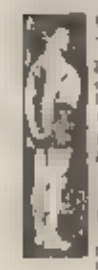

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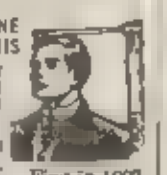

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THE READER SPEAKS

(Continued from page 1099)

(The only book on rockets published in English is "The Conquest of Space" by David Lasser, managing editor of WONDER STORIES, and president of the American Interplanetary Society. It was published by the Penguin Press, 113 W. 42nd Street, New York, and covers the entire rocket question.

We would caution Mr. Gee about making a powerful explosive unless he is sure he knows how to control its action. Information about powder explosives can be obtained from the Unexcelled Fireworks Co., 23 Park Place, New York or from the DuPont Powder Co., Wilmington, Del.

Mr. Gee may be interested to know that A. Merritt's "Face in the Abyss" has recently been published by Horace Liveright, Inc., New York. "The Moon Pool" is, we believe, out of print but one of our readers may have a copy for sale. If so we refer him to Mr. Gee. *Editor.*)

An Eight-Sided Earth

Editor WONDER STORIES

We are glad to say that WONDER STORIES [illegible] on the upward swing of the graph. Not only because its rivals are degrading but because WONDER STORIES itself has progressed tremendously in the last few months.

Your best advancement lies in the fact that [illegible] using Paul to illustrate every story. But how about having your wonderful artist giving us some truly lively [illegible] coming out of them? If so, perhaps you may be able to use these few suggestions when stories containing these ideas are presented.

(1) Our planet has appeared many times on the covers of science fiction magazines but we haven't had one glimpse of our world as it will look many millions of years in the future. According to a prominent astronomer, this orb will not be round but shaped like an eight-sided pyramid. A cover with this for subject matter ought to be a hummer, with the continents, still recognizable, spread over the pyramid.

(2) In almost every other story, we are treated to a vivid description of "skyscrapered" cities but, to date, we haven't had one cover depicting buildings reaching to the clouds. A word to the wise is sufficient.

(3) "Suddenly, the cosmos was illuminated by the flaming atoms as the dynamited world was blown to shreds!" But, alas and alack, it's only a play on words. Why not a cover demonstrating such a cosmic cataclysm? Remember, the Chinese proverb, "A picture is worth ten thousand words."

(4) One of the theories regarding [illegible] of the earth consists of the belief that the [illegible] star, 46 Tauri, passed our sun in prehistoric ages. And, due to the terrific gravitation involved, the planets were torn off the surface of the sun and hurled into space to form the solar [illegible]. Paul is the only one whose drawings would approximate a photograph of the action.

(5) Warning! Hard job in sight, notify Paul immediately. On second thought, you may take your time because you'd pick him anyhow to do full justice to the following theme. Time traveling shown on the cover! The scenes and sights of the future blending with the sights of the present with our time travelers watching wonders unveiling before their skeptical eyes.

Pretty hard, all of them, but Paul is the man for the job.

Mind you, the stories you are publishing now may be well liked but I know that our favorites are much more welcome. We're not complaining about the new authors, we hope to see them rank ourselves, but keep up the good work by giving us stories by Messrs. Keller, Merrill, Verne, Wells, Breuer, Flint, Merritt, Smith, Servass and, of course, an occasional treat by Hugo Gernsback.

Since we have nothing more to add right now we'll close wishing you the best of luck.

L. Manzon,
J. Unger
292 Myrtle Ave.
Brooklyn, N. Y.

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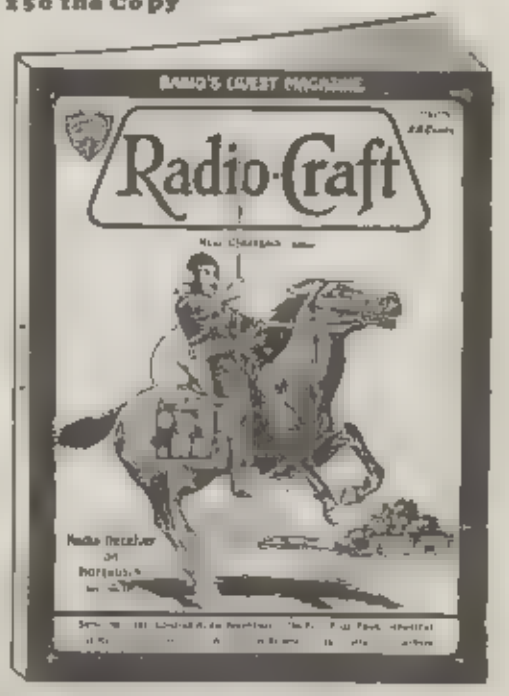

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Based on the Fourth Prize Winning Plot of the Interplanetary Plot Contest . . . .

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THE READER SPEAKS

(We should like very much to know of this prominent astronomer" who predicts an eight sided earth for the future. We want to learn whether he made his prediction seriously

Although we are glad to get these suggestions for future covers for Paul, we rather feel that the best subjects come directly from stories. Otherwise the covers are manufactured and have not the same spontaneity. But we may in the near future work up some new contest to stimulate the glandular secretions of our enterprising readers. *Editor.*)

For Wide-Mouthed Not Wide-Awake Youths

Editor, WONDER STORIES

Your latest letter, magnificently multigraphed and addressed, was just received. You seem somewhat querulous, questioning your former subscriber's lack of interest in a magazine he formerly patronized. WONDER STORIES.

"Well, sah," as a Southerner should say, I want to answer you concerning the writer's opinion (i.e., about your publication), and if you are at all fair to your all-believing public you will print this critical epistle.

To begin with, I first read your earlier monthly when I wanted to read "something different 'n interesting." It gave me some (sin)needed knowledge . . . It made me, like other adolescents, clamor for more of your really impossible stories and in a space of a trifle more than two years after first perusing a Gernsback publication, I felt, as other aging adolescents, that your magazines and what-not were worse than trash.

Mr Gernsback, if, as you say your WONDER STORIES is a better grade "quality" magazine, why not send some of your readers some queries, asking about their occupations, etc.? You will find, undoubtedly, that your quality magazine does not cater to a quality public; in fact, it is read mostly by wide-mouthed (not always wide-awake) youths. Dare to deny it!

I have not read any Gernsback publications for more than 18 months. Nor am I sorry. Perhaps I have erred in not crediting you with starting the mystery, amazing and scientific story fad, but this is a letter for "brickbats," as I remember you termed your unlandatory correspondence.

Hoping to receive some sort of mild answer from a really enraged editor (I am a writer but never wrote for you, thank you), I remain,

Abbey A. Schwartz,
515 West End Ave.,
New York

(It is a curious commentary on correspondents who write to us stating that they will never read our magazines again, that they dare us to print their letters. May we hope that they will at least buy the magazine to see if their letters have been printed?

We admit that many of our readers are young men and women. We are glad of it. These young people of open minds can more readily adjust their attitudes about the future than the solidly mature man who has already acquired many prejudices. [illegible] as well as entertainment, we are again glad that we have so many thousands of young readers.

But we deny emphatically Mr Schwartz' designation of them. We are willing to put our young readers, boy for boy and girl for girl, against any other group in this country and match their intelligence and alertness. We are quite proud of our readers, and what we had observed with satisfaction was their mental alertness.

We do not say that all or even half of the predictions of our authors will materialize in fact. But we do say that they are all possibilities of the future. And if they do not come true it is not because of the imagination of the author, but because we have no scientists with technical equipment and intelligence equal to the task the writer has set for.

We are sorry to lose Mr. Schwartz, but we must reconcile ourselves to the loss. All magazines lose readers continually and acquire others. Perhaps it is well that that be so, for every magazine needs new blood among its readers as well as its writers. It is probably true that the men-

(Continued on page 1102)

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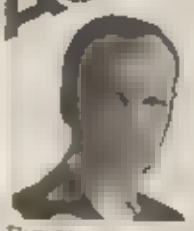

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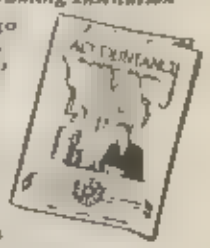

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THE READER SPEAKS

(Continued from page 1101)

tal attitude of Mr. Schwartz has changed so that he no longer finds interest in things that attracted him years ago. That is natural, too. We wish him success in his writing, and hope that he will maintain an open unbiased point of view that is so necessary to all writers.—*Editor.*)

Would Cause the Body to Explode

Editor, WONDER STORIES:

I think that we need more stories like "The Derelicts of Ganymede." It had what most of your stories lack—a touch of humor. Some of us get tired of reading page after page of awful happenings without something funny for a diversion.

I agree absolutely with Mr. Kaletsky. Lowered pressure has been known to kill people. A vacuum, it seems to me, would cause the human body to explode summarily. Authors should think of such things.

"The Time Stream" is great. I can hardly wait to see the next issue and find the secret of the five suns. This story is written with the touch of a master. It leaves out all unnecessary explanations in a real scientific manner.

Please send some more blanks for science fiction movies. I'm with you, and I shall be glad when the producers quit changing stories to their own tastes. More time traveling and less love interest.

J. D. McCutcheon, Jr.,
2332 Carnation Ave.,
Fort Worth, Texas.

(Since the reception to the humor in "Derelicts of Ganymede" was so favorable, we shall run other humorous stories occasionally. We can see Mr. McCutcheon's point of view, in desiring a release from the intensity of the more serious stories.

We have asked Mr. Schachner to answer both Mr. Kaletsky and Mr. McCutcheon with regard to the belief of these gentlemen that the man who was ejected from a space ship unprotected into interplanetary space, in "Exiles of the Moon," should have died at once. If Mr. Schachner's letter reaches us in time it will be printed in this issue, otherwise in the March issue.—*Editor.*)

Much Amused

Editor, WONDER STORIES:

Have just finished reading your all-star January issue and want especially to compliment you on "The Duel on the Asteroid," by P. Schuyler Miller and Dennis McDermott. I sincerely hope that the new team will collaborate many more times to tell us of the adventures of Lem Gulliver and his friends and enemies.

I would also like to mention that I am a reader of "Golden Book" and noted that P. Schuyler Miller, talented young author, won a prize for writing a book review on a popular book. That goes to show why Mr. Miller's stories have literary as well as scientific value.

Next in the issue stands "The Crystal Empire," by Sidney D. Berlow. Let's have more by him. "Martian Guns" and "The Derelicts of Ganymede" are also star stories. In fact, this copy is an all-star issue in my estimation. As for John Taine's "Time Stream," it is in a class by itself.

I am much amused to read letters by different readers as to the different values placed on the various science fiction magazines now in the field. You know as well as I do that all have good stories and that some of the good authors write for all, notably John Taine, Edmond Hamilton, Captain Meek, David Keller and others.

Let's have some more stories from Germany. "The Cosmic Cloud" was a masterpiece.

Please send me some more science fiction movie petition blanks. I can find plenty of signers.

I. M. King,
Shenandoah, Iowa.

(The team of Miller and McDermott are going on, we are glad to state, to produce more stories of the Lem Gulliver series. We have already seen synopses of some of the forthcoming stories and we like them. They offer something new and different in science fiction, a new human note, new experiences, and we are encouraging our authors to carry on. The next story of the series will be announced shortly.—*Editor.*)

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BOOK REVIEWS

SCIENCE TODAY. Edited by Watson Davis. 310 pages, illustrated, stiff cloth covers. Size 5¼x8. Published by Harcourt, Brace & Co., New York. Price $2.50.

This book is a compilation of short radio talks on various aspects of science by prominent authorities, under the auspices of Science Service. Astronomy, biology, chemistry, physics, and the social sciences are all included in this excellent volume.

Although the individual essays are so short that they do not permit of any fully satisfactory expositions of the various subjects, they do offer bird's eye sketches of the state of the various sciences today.

Of particular interest to the reviewer was the essay, "A Future Journey to the Moon" by Dr. John Q. Stewart of Princeton University. Dr. Stewart believes a space ship can be built in 100 years, and that it will be a 100-foot sphere constructed at a cost of $2,000,000,000. It will be powered by 110 billion kilowatts of energy and will require 6 days to make the journey to the moon.

JAMES CLERK MAXWELL, a Commemoration Volume. 150 pages, illustrated. Size 5½x7½. Published by the Macmillan Company, New York. Price $2.50.

This volume contains a series of essays by such notables in science as J. J. Thomson, Planck, Einstein, Jeans, Lodge, and others, as a commemoration of the birth of Maxwell in 1831. The essays show all sides of the man, his personal life, his views on religion as well as on science, and also his epochal work on theories of electricity, which have now become fundamental. As Jeans said, "in his hands electricity became a mathematically exact science." His electromagnetic theory of light, which is perhaps his greatest work, is today the cornerstone of physics and the basis of modern theories of matter; for it forms a building block of the electromagnetic spectrum, upon which our notions of radio, x-rays, cosmic rays, etc., are constructed.

BEHIND THE SCENES WITH OURSELVES by Carl Ramus. 443 pages, stiff cloth covers. Size 5¼x8. Published by The Century Company, New York. Price $3.00.

Dr. Ramus in a series of loosely related essays delves into some of the factors in our existence that prevent us from being truly ourselves. Custom, convention, habit, the desire to posture before others, complexes of various kinds are all presented by him as evidences of the good old Shakesperian wag "All the world's a stage."

The essays deal with such diverse topics as "Psychology and Common Sense"; "New Year's Resolutions"; "Why Censors Like Their Jobs"; "The Psychology of Sexual Misfits"; "Respectability and Reputation". Although the book is not conspicuously well-written, nor penetrating in its judgment, it does throw light on some of the things such as homosexualism, which hardly have touched the light of day in general publications previous to the last ten years.

AFTER ITS KIND by Byron C. Nelson, Th. M. 220 pages, stiff cloth covers, illustrated. Size 8x5¼. Published by Augsberg Publishing House, Minneapolis. Price $1.50.

Dr. Nelson's thesis in this book is that the very evidence that evolutionists use to prove that all species evolved from a common stock through millennia of time, really proves the Biblical contention that a special act of creation brought separate species into existence. He has brought together a goodly accumulation of facts to prove scientifically the validity of the first chapter of the Book of Genesis. Dr. Nelson shows that scientists have never yet been able to produce one species from another, thereby proving according to the author that they could only originate by divine creation. He also develops the theme that the scientists have tried in vain to prove the ages of various geological formations, and that their proofs are self contradictory.

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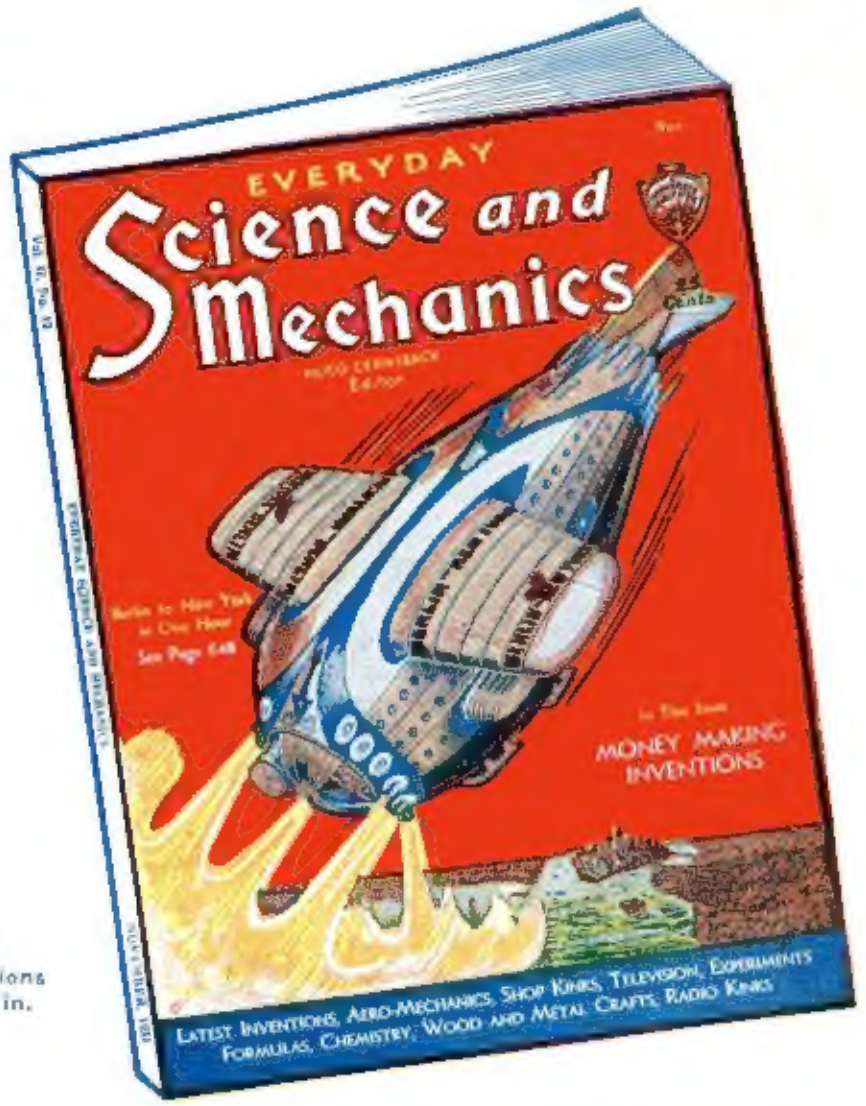
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